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SOLAR-GEOPHYSICAL DATA
(prompt reports)

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Environmental Data Service

SEPTEMBER 1973

NUMBER 349-PART I
DATA FOR
AUGUST 1973
JULY 1973

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, Secretary
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Robert M. White. Administrator
ENVIRONMENTAL DATA SERVICE
Thomas S. Austin, Director

Solar - Geophysical Data

NO. 349 SEPTEMBER 1973

Part I (Prompt Reports)

DATA FOR
AUGUST 1973
JULY 1973

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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SOLAR - GEOPHYSICAL DATA

No. 349

Issued in two parts

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CONTENTS

Part I (Prompt Reports)

	Page
Index for 1972 and 1973	2
Data for August 1973	3-22
Data for July 1973	23-122

Part II (Comprehensive Reports)

Index for 1972 and 1973	2
Data for March 1973	3-70
Data for February 1973	71-78
Miscellaneous Data Cosmic Rays - Neutron Monitors -- June 1973 Deep River Daily Values Deep River and Alert Charts of Variation	79-81

INDEX FOR 1972 - 1973 DATA PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1972					1973							
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
A.	Solar and Interplanetary Phenomena													
A.1	Sunspot Drawings	338	339	340	341	342	343	344	345	346	347	348	349	
A.2a	Zürich Provisional Relative Sunspot Numbers R_Z	337	338	339	340	341	342	343	344	345	346	347	348	349
A.2b	Zürich Final Sunspot Numbers R_Z	343	343	343	343	343								
A.2c	American Relative Sunspot Numbers R_A'	337	338	339	340	341	342	343	344	345	346	347	348	349
A.3a	Mt. Wilson Magnetograms	338	339	340	341	342	343	344	345	346	347	348	349	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	338	339	340	341	342	343	344	345	346	347	348	349	
A.4	H_α Spectroheliograms	338	339	340	341	342	343	344	345	346	347	348	349	
A.5	Calcium Plage Drawings - McMath (or Catania)	338	339	340	341	342	343	344	345	346	347	348	349	
A.5a	Calcium Plage (McMath) and Sunspot Regions	338	339	340	341	342	343	344	345	346	347	348	349	
A.5b	McMath Daily Calcium Plage Index	338	339	340	341	342	343	344	345	346	347	348	349	
A.6	H_α Synoptic Charts											348	349	
A.7b	Coronal Line Emission	338	339	340	341	342	343	344	345	346	347	348	349	
A.7c	White-Light Corona (NRL OSO-7, 1971-083A)	338	339	340	341	342	343	344	345	346	347	348	349	
A.7d	Solar EUV Spectroheliogram Fe XV 284 Å (GSFC OSO-7, 1971-083A)	338	339	340	341	342	343	344	345	346	347	348	349	
A.7e	Solar XUV Cortonograms (NRL OSO-7, 1971-083A)			340	341	342	343	344	345	346	347	348	349	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.8ac	2800 MHz - Daily Values of Adjusted Solar Flux (ARO-Ottawa)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.8g	15400, 8800, 4995, 2695, 1415, 606, 410, 245 MHz Adj. Solar Flux (AFCRL)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.9a	9.1 cm Radio Maps of the Sun (Stanford)	338	339	340	341	342	343	344	345	346	347	348	349	
A.9b	21 cm Radio Maps of the Sun (Fleurs)	338	339	340	341	342	343	344	345	346	347	348	349	
A.9c	8.6 mm Radio Maps of the Sun (Prospect Hill)	338	339	340	341									
A.10a	169 MHz - Interferometric Observations (Nançay)	337	338	340	340	341	343	344	345	346	347	348	349	
A.10c	21 cm East-West Solar Scans (Fleurs)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.10d	43 cm East-West Solar Scans (Fleurs)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.11aa	Solar X-ray Radiation (Explorer 37 or 44)	338	339	340	341	342	343	344	345	346	347	348	349	
A.11ab	Solar X-ray Radiation (Explorer 37 or 44) Graphs	342	343	344	345	346	347	348	349					
A.11e	Solar X-ray Spectroheliograms (OSO-5)	338	339	340	342	---	---	---	---	---	---	---	---	---
A.11f	Solar X-ray Spectroheliograms (GSFC OSO-7, 1971-083A)					342	343	344	345	346	347	348	349	
A.12aa	Solar Protons (Explorer 41 or 43) Daily hourly values	342	343	345	345	346								
A.12ab	Solar Protons (Explorer 41 or 43) Graphs	342	343	345	345	346								
A.12ba	Cosmic Ray Protons (Pioneers 6 & 7)	337	---	339	340	---	342	---	---	---	346	347		
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.12c	Cosmic Ray Protons (ATS-1)	337												
A.13a	Solar Wind (Pioneers 6 & 7)	337	---	339	340	341	342	---	---	---	346	347	348	349
A.13c	Solar Wind (Vela 6B)													
A.17	Interplanetary Magnetic Field (Pioneer 8)	---	---	339	340	---	342	---	---	---	346	347		
A.17	Interplanetary Magnetic Field (Pioneer 9)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.17c	Inferred IP Magnetic Field	348	348	348	348	348	348	348	348	348	348	348	348	349
A.18	Interplanetary Electric Field (Pioneer 8)	---	---	339	340	---	342	---	---	---	346	347		
A.18	Interplanetary Electric Field (Pioneer 9)	337	338	339	340	341	342	343	344	345	346	347	348	349
B.	Ionospheric (and Radio Wave Propagation) Phenomena													
B.51ca	High Latitude Quality Figures and Forecasts	338	339	340	341	342	343	344	345	346	347	348	349	
B.51cb	High Latitude Comparison Graphs	338	339	340	341	342	343	344	345	346	347	348	349	
B.52	Graphs of Transmission Frequency Range	338	339	340	341	342	343	344	345	346	347	348	349	
B.53	Quality Figures based on Frequency Ranges	338	339	340	341	342	343	344	345	346	347	348	349	
C.	Flare-Associated Events													
C.1a	Optical Observations Flares	337	338	339	340	341	342	343	344	345	346	347	348	349
C.1ba	Optical Observations Flares (Including Standardized Data)	342	343	344	345	346	347	348	349					
C.1d	Flare Patrol Observations	337	338	339	340	341	342	343	344	345	346	347	348	349
C.1e	Flare Indices (by day)	342	343	344	345	346	347	348	349					
C.1f	Flare Index by Region	343	344	345	346	347	348	349						
C.3	Solar Radio Waves - Fixed Frequencies - Outstanding Occurrences	342	343	344	345	346	347	348	349					
	Solar Radio Waves - Fixed Frequencies - Selected	337	338	339	340	341	342	343	344	345	346	347	348	349
C.3t	43.25, 80 and 180 MHz Selected Bursts (Culgoora)	---	---	---	---	342	344	344	345	346	347	348	349	
C.4aa	10-2000 MHz - (Fort Davis)	338	339	340	341	342	343	344	345	346	347	348	349	
C.4b	7.6-80 MHz - (University of Colorado)	338	339	340	341	342	343	344	345	346	347	348	349	
C.4d	8-8000 MHz - (Culgoora)	338	339	340	341	342	343	344	345	346	347	348	349	
C.4e	30-1000 MHz - (Weissenau, G.F.R.)	338	339	340	341	342	343	344	345	346	347	348	349	
C.4f	24-48 MHz - (AFCRL, Sagamore Hill)	338	339	340	341	342	343	344	345	346	347	348	349	
C.5b	Solar X-ray Radiation (Explorer 35)													
C.5c	Solar X-ray Radiation (Explorer 44)	338	339	340	341	342	343	344	345	346	347	348	349	
C.6	Sudden Ionospheric Distrubances	338	339	340	341	342	343	344	345	346	347	348	349	
D.	Geomagnetic and Magnetospheric Phenomena													
D.1a	Geomagnetic Indices Ci, Cp, Kp, Ap - Selected Days	338	339	340	341	342	343	344	345	346	347	348	349	
D.1b	27-Day Chart of Kp Indices for Year	342	342	342	342	342								
D.1c	27-Day Chart of C9 for Year	342	342	342	342	342								
D.1d	Principal Magnetic Storms	338	339	340	341	342	343	344	345	346	347	348	349	
D.1e	Reduced Magnetograms	342	343	---	345	346	---	348	349					
D.1f	Sudden Commencement and Solar Flare Effects	338	339	340	341	342	343	344	345	346	347	348	349	
D.1g	Equatorial Indices Dst										347	348	349	
F.	Cosmic Rays													
F.1a	Cosmic Ray Neutron Counts (Deep River)						346	346	346	347	348	349	349	
F.1b	Cosmic Ray Neutron Counts (Climax)													
F.1c	Cosmic Ray Neutron Counts (Dallas)	338	339	340	341	343	343	344	345	346	347	348	349	
F.1d	Cosmic Ray Neutron Counts (Churchill)	348	348	348	348	348	349							
F.1e	Cosmic Ray Neutron Counts (Alert)						346	346	346	347	348	349		
F.1f	Cosmic Ray Neutron Counts (Calgary)	338	339	340	341	342	343	344	345	346	347	348	349	
F.1g	Cosmic Ray Neutron Counts (Sulphur Mountain)	338	339	340	341	342	343	344	345	346	347	348	349	
F.1h	Cosmic Ray Neutron Counts (Thule)									346	347	348	349	
H.	Miscellaneous													
H.60	IUWDS Alert Decisions	337	338	339	340	341	342	343	344	345	346	347	348	349
H.62	Abbreviated Calendar Record	343	344	345	346	347	348	349						

AUGUST 1973 DATA

Contents

	Page
Alert Period	
IUWDS Alert Periods (Advance and Worldwide)	5
Daily Solar Indices	
12-Month Tables Sunspot Numbers, R_Z, and 2800 MHz Flux Adjusted to 1 A.U.	6
Combined Table Sunspot Numbers and Solar Fluxes	7
Graph of Sunspot Cycles	8
Zürich Smoothed Observed and Predicted Sunspot Numbers	9
Solar Flares	
Flares of Numerical Importance 1 or Greater	10
Subflares	11
No-Flare-Patrol Chart	12
Solar Radio Waves	
169 MHz Solar Interferometric Chart - Nancay	13
10.7 cm East-West Solar Scans - ARO, Ottawa	14
21 cm East-West Solar Scans - Fleurs	15
43 cm East-West Solar Scans - Fleurs	16
Selected Fixed-Frequency Occurrences	17-18
Selected Solar Noise Burst	19
Spacecraft Observations	
Pioneers 6 & 7	20
Pioneers 8 & 9	21
Inferred IP Magnetic Field Polarities	22

For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1973

AUG. 1973	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT	
			NO.	TYPE INCLUDING FLARE ACTIVITY EXPECTED
01	0400		01588	MAGSTORM BEGINS 31/0545 MINOR SOLNIL ONE QUIET
02	0400		02589	MAGSTORM ENDS 01/0300 SOLNIL TWO QUIET
03	0400			SOLNIL THREE QUIET
04	0400			SOLNIL THREE QUIET
05	0400			SOLNIL THREE QUIET
06	0400		06590	SOLALERT THREE QUIET
	1702	WENDELSTEIN SOFLARE CLASS 1F N07W13 DURATION 30 MINUTES		
07	0400		07591	SOLALERT N06W15 ACTIVE TWO QUIET
08	0400		08592	SOLALERT N06W30 ERUPTIVE TWO QUIET
09	0400			SOLNIL N07W43 ERUPTIVE TWO QUIET
10	0400			SOLNIL N07W57 ERUPTIVE THREE QUIET
11	0400		11593	MAGALERT MINOR 11/12 N07W71 ERUPTIVE TWO QUIET
12	0400			SOLNIL ONE QUIET
13	0400			SOLNIL NO SPOTS ON VISIBLE DISK
14	0400			SOLNIL NO SPOTS ON VISIBLE DISK
15	0400			SOLNIL NO SPOTS VISIBLE ON DISK
16	0400			SOLNIL NO SPOTS VISIBLE ON DISK
17	0400			SOLNIL ONE QUIET
18	0400			SOLNIL NO SPOTS VISIBLE ON DISK
19	0400			SOLNIL ONE QUIET
	1249	BOULDER MAGSTORM BEGINS 20/1200Z K INDEX IS 5 20/1249Z SUDDEN COMMENCEMENT AT 20/0919Z		
20	0400			SOLNIL ONE QUIET
21	0400		21594	MAGALERT 22/26 MINOR TWO QUIET
22	0400		22595	MAGALERT 22/26 MINOR ONE QUIET
23	0400		23596	MAGALERT 23/26 MINOR ONE QUIET
24	0400		24597	MAGALERT 24/26 MINOR TWO QUIET
	1315	BOULDER MAGSTORM BEGINS 24/0130Z AURORA REPORTED LAT S67 TO S71 LONG W133 TO W163		
25	0400		25598	MAGSTORM BEGINS 23/13XX MINOR THREE QUIET
26	0400		26599	MAGSTORM EXISTS MINOR N12W34 ERUPTIVE TWO QUIET
27	0400		27600	MAGSTORM EXISTS MINOR THREE QUIET
28	0400		28601	MAGSTORM EXISTS MINOR FOUR QUIET
29	0400			SOLNIL FIVE QUIET
30	0400			SOLNIL EIGHT QUIET
31	0400			SOLNIL S15E52 ERUPTIVE SIX QUIET

RELATIVE SUNSPOT NUMBERS

ZURICH, R_Z

	1972 FINAL				1973 PROVISIONAL							
DAY	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	127	70	73	40	45	7	40	65	24	8	26	36
2	99	65	67	31	53	17	38	79	46	8	25	28
3	79	73	49	28	55	22	35	93	64	16	29	21
4	78	73	33	24	60	21	32	93	77	14	24	28
5	88	67	23	21	72	41	22	75	92	7	32	34
6	81	57	13	18	83	32	32	75	68	16	44	40
7	73	54	8	24	66	34	38	76	82	37	46	42
8	71	52	7	29	60	53	50	71	52	34	44	40
9	59	34	14	42	70	60	53	68	30	29	34	38
10	46	30	12	53	55	61	67	65	25	35	30	27
11	43	34	30	61	52	59	69	62	26	60	23	23
12	36	23	33	64	32	80	92	46	18	58	14	0
13	32	15	33	67	35	83	79	41	7	52	15	0
14	37	8	27	69	15	85	78	37	7	51	9	0
15	45	14	21	71	10	74	73	35	25	46	16	0
16	53	34	25	66	11	54	64	29	33	41	9	0
17	44	30	32	71	27	36	52	16	34	34	22	0
18	38	26	28	58	42	28	44	15	41	18	36	7
19	33	44	42	49	47	18	34	32	42	38	23	7
20	47	60	58	54	60	30	23	42	32	46	8	7
21	60	69	65	67	62	31	20	45	52	75	8	15
22	69	78	63	59	62	25	30	67	53	61	14	10
23	65	85	73	57	60	33	37	72	47	44	0	17
24	77	94	77	48	50	38	29	73	57	48	9	22
25	82	105	65	43	39	48	27	67	64	47	14	28
26	78	111	57	39	27	37	23	67	46	43	9	38
27	77	110	55	34	8	36	32	67	51	38	9	37
28	67	104	61	26	14	36	43	60	32	39	10	47
29	70	89	47	25	7		46	54	23	51	17	56
30	75	98	43	29	16		50	42	21	33	11	64
31		93		37	13		56		17		22	82
MEAN	64.0	61.3	41.6	45.3	42.2	42.1	45.4	57.6	41.5	37.6	20.4	25.6

1972 yearly mean = 68.9

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_A

	1972				1973							
DAY	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	144.3	114.7*	129.9	91.1	93.9	88.6	99.5	115.0	111.9*	85.2	90.9	78.2
2	139.7*	108.4*	121.8*	89.4	98.2	88.6	101.6*	118.1*	115.0*	83.1	93.1	78.1
3	129.4*	107.3	113.9	85.2	105.1*	93.1	97.8*	129.4	117.3	81.5	93.5	76.5
4	122.0	103.3	115.8	82.3	109.3*	94.1*	96.6	122.3	115.9*	81.0	94.9	77.6
5	117.0*	100.6	102.6	80.4	113.3	94.3	94.8	117.7	115.0*	82.5	97.9	76.6
6	119.2	98.4	93.2	77.8	115.0	95.3*	98.9	112.7*	109.7	85.1	99.4	79.9
7	110.4	96.1	95.7	87.1	112.3	98.5	92.2	110.3	103.4	85.3	99.9	81.7
8	115.9	97.2	82.5	91.6*	103.2	100.5	98.9*	121.0	100.0	87.4	97.6*	78.8
9	112.9	100.5	82.3	94.7*	103.7	100.9	104.7*	120.5	95.1	88.9	98.6*	78.4
10	107.2	94.7	84.7	97.2*	103.8	102.1*	105.6*	115.5	90.9*	91.0	100.5	75.1
11	102.7	93.5*	88.3	105.1*	102.8	101.2	113.4	110.3*	87.0	92.9	94.0	71.0
12	103.6	94.7	88.7	108.9	103.5	104.6*	114.5	130.4*	86.8	93.6	95.4	68.7
13	94.6	94.5	86.7	111.2*	100.9*	104.7*	118.9	99.4*	85.2	96.3	80.3	67.2
14	99.5	97.8	85.1	114.8*	96.2	105.6	114.0*	92.7*	89.3	97.7*	79.5	66.7
15	103.4	102.1*	86.5	116.1*	94.6	104.7	107.1*	89.5	90.1	98.2	78.7	65.3
16	103.1	106.2	89.6	118.2	93.8	98.7	106.9	85.0	89.5	95.2	79.5	66.7
17	103.3	112.1*	91.5	111.9	94.2	94.2	101.5	82.1	91.4	89.8	79.1	67.5
18	102.6	111.8	94.6	112.4	95.3	90.7	94.9	80.9	95.4	91.4	83.6	67.8
19	106.2	117.1*	99.7	113.2	94.8	88.9	96.7*	82.8	99.4	99.2	81.6	67.9
20	113.2	122.2	109.4	111.4	98.3	89.4	91.0	86.4	104.7*	105.4	79.5	69.1
21	113.4*	132.8*	139.3*	113.4*	97.9	89.9	87.4	95.2	102.2	108.8	79.4	72.4*
22	119.4*	141.7	110.9*	107.9*	98.5	89.7	90.3	105.8	103.1	109.4	77.6	72.4
23	125.2*	151.2*	115.3*	106.2	97.2	91.4	87.1	109.2	99.6	108.8	78.6	73.6
24	126.8	156.5	115.4*	101.1	96.9	93.6*	89.4	109.0*	104.5	106.1	81.6	76.8
25	126.3*	171.8	112.7	103.3*	95.6	97.2	90.0	109.2*	104.7	101.3	83.8	80.0
26	122.5*	178.8*	108.6	97.7	95.3	95.6	88.6	110.0*	101.1	100.3	85.0	82.1
27	118.3*	167.6*	102.3	97.6	93.4	98.2	92.0	111.6*	99.9	94.8	85.5	85.6
28	116.4	159.1*	97.5	91.9	91.7	100.9*	94.2	112.6	94.1	95.2	84.2	87.8
29	115.2	B.I.P.	92.7	92.8*	91.4		99.0	109.5*	93.3	95.1	89.5*	90.7
30	118.5	144.6*	95.1	92.8*	89.7		102.7	106.2*	90.8	94.1*	86.1	91.2
31		140.1*		94.3	87.7		110.3		87.2		86.6	98.6
MEAN	114.9	120.2	99.7	99.7	99.0	96.3	99.4	105.8	99.1	94.2	87.2	76.5

B.I.P. = burst in progress
* adjusted for burst

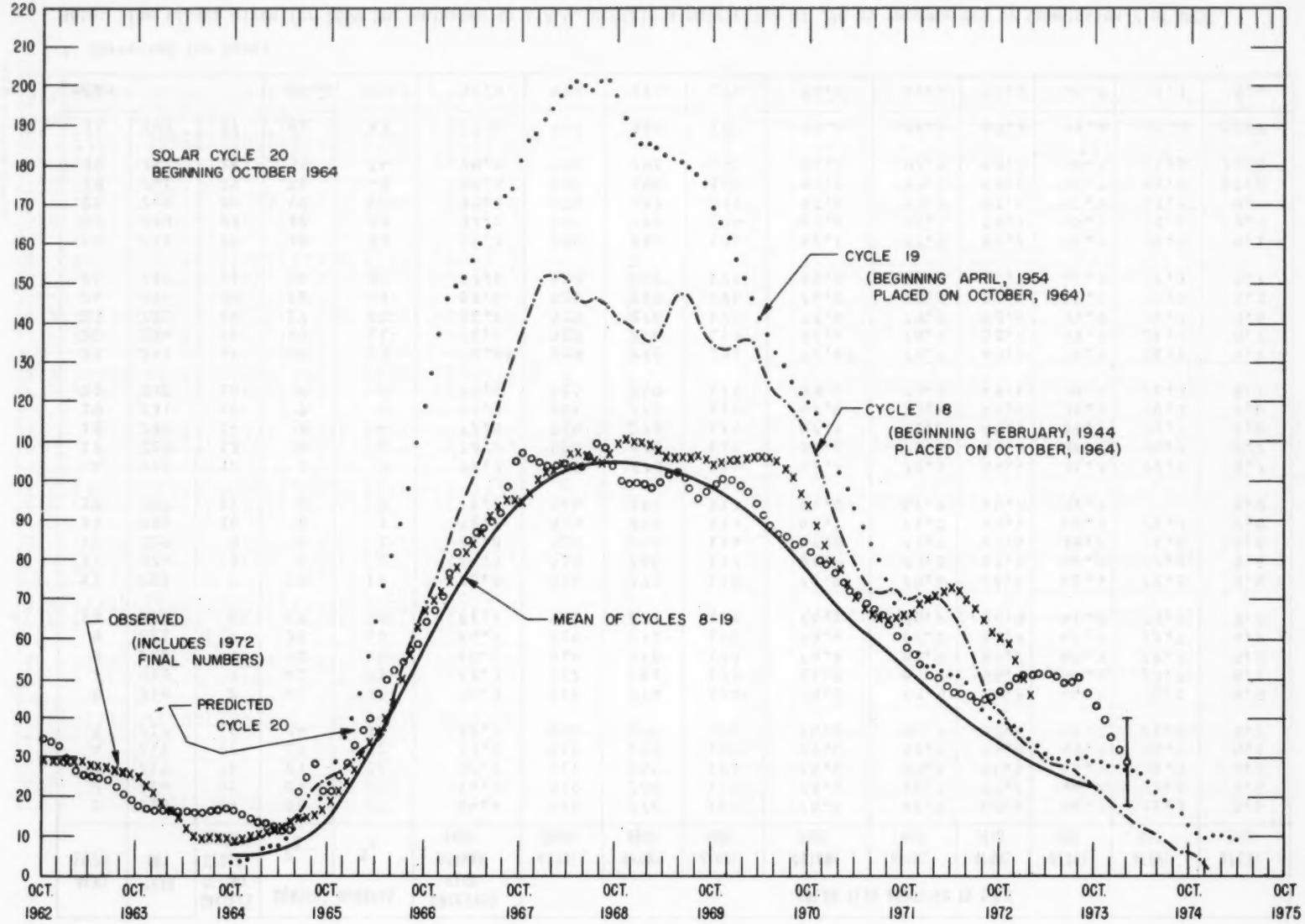
DAILY SOLAR INDICES

AUGUST 1973

AUG. 1973	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$	OTTAWA 2800	AFCRL 15400	AFCRL 8800	AFCRL 4995	OTTAWA 2800	AFCRL 2695	AFCRL 1415	AFCRL 606	AFCRL 410	AFCRL 245
1	213	24	36	27	84.4	522	272	125	78.2	82.5	60.4	44.2	21.3	8.6
2	214	25	28	25	84.3	519	269	123	78.1	82.7	57.7	44.2	22.1	8.6
3	215	26	21	20	82.5	517	265	121	76.5	81.8	56.5	43.2	21.9	8.8
4	216	27	28	32	83.8	515	270	122	77.6	82.1	54.5	43.2	21.7	9.1
5	217	1	34	34	82.7	512	275	122	76.6	81.3	53.4	42.2	21.5	9.2
6	218	2	40	36	86.3	516	274	124	79.9	83.9	54.3	44.5	22.1	9.9
7	219	3	42	51	88.3	523	281	128	81.7	85.7	56.4	44.3	23.7	9.1
8	220	4	40	45	85.1	514	276	123	78.8	83.2	53.2	42.9	22.7	9.0
9	221	5	38	40	84.7	519	273	122	78.4	82.3	53.9	42.5	22.7	9.2
10	222	6	27	30	81.2	520	277	121	75.1	79.2	50.9	41.8	23.5	9.0
11	223	7	23	15	76.8	516	271	118	71.0	75.4	48.5	41.4	22.8	9.4
12	224	8	0	0	74.3	519	266	117	68.7	73.1	47.0	40.8	22.3	9.6
13	225	9	0	1	72.8	516	266	114	67.2	71.5	45.6	39.2	21.6	8.8
14	226	10	0	1	72.2	514	266	113	66.7	71.7	46.1	40.1	21.3	9.0
15	227	11	0	0	70.8	514	269	113	65.3	67.8	45.7	39.3		8.9
16	228	12	0	2	72.3	515	273	114	66.7	70.1	44.4	38.8	20.5	8.7
17	229	13	0	2	73.2	520	270	115	67.5	71.3	44.2	38.7	20.7	8.7
18	230	14	7	4	73.5	516	271	115	67.8	72.2	45.3	39.1	20.7	8.6
19	231	15	7	6	73.6	516	272	115	67.9	72.4	44.9	38.4	20.3	8.6
20	232	16	7	8	75.0	513	269	119	69.1	73.2	48.1	39.6	21.3	8.7
21	233	17	15	13	78.6*	519	276	121	72.4*	78.7	49.0	38.9	21.1	8.7
22	234	18	10	11	78.6	523	276	119	72.4	78.2	50.7	39.3	21.3	8.7
23	235	19	17	20	80.0	525	276	123	73.6	79.5	50.6	39.8	22.7	9.8
24	236	20	22	19	83.5	525	280	126	76.8	82.1	51.0	42.0	22.6	9.3
25	237	21	28	30	87.0	522	282	127	80.0	86.0	52.5	42.3	22.9	8.7
26	238	22	38	33	89.3	524	284	131	82.1	87.9	55.2	43.7	20.9	9.1
27	239	23	37	32	93.1	524	285	134	85.6	91.4	58.3	45.1	23.1	9.3
28	240	24	47	42	95.6	528	287	135	87.8	93.9	61.6	45.9	23.7	9.4
29	241	25	56	49	98.8	526	290	140	90.7	97.0	58.8	46.5	24.0	10.0
30	242	26	64	74	99.4	526	291	142	91.2	97.5	64.2	46.9	24.6	11.8
31	243	27	82	87	107.6	527	300	153	98.6	106.4	65.2	48.4	27.3	17.7
MEAN			25.6	25.5	82.9	519	276	124	76.5	81.4	52.6	42.2	22.3	9.4

* Corrected for burst.

Note: The values given for 2800 MHz adjusted to 1 A.U. contain a multiplier of .90 as recommended by Commission V of URSI.



PREDICTED AND OBSERVED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 20

MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1964										9.6	10.2	11.0
1965	11.7	12.0	12.5	13.6	14.6	15.0	15.5	16.4	17.4	19.7	22.3	24.5
1966	27.7	31.3	34.5	37.4	40.7	44.6	50.3	56.6	63.1	67.6	70.2	72.7
1967	75.0	78.8	82.2	84.6	87.4	91.3	94.1	95.3	95.3	95.0	97.1	100.6
1968	102.6	102.9	104.7	107.2	107.6	106.6	105.2	104.8	107.0	109.9	110.6	110.1
1969	110.0	109.6	108.0	106.4	106.2	106.1	105.8	106.4	105.4	104.1	104.6	104.9
1970	105.6	106.0	106.2	106.1	105.8	105.3	103.8	101.0	97.2	93.9	89.4	84.1
1971	80.4	77.8	74.4	70.9	68.1	66.7	65.4	64.6	65.8	66.2	66.8	69.4
1972	70.8	71.2	72.4	73.4	72.9	70.5	68.1	65.4	62.0	60.3	58.5	54.8
1973	50.3	45.8	44.4 (1)	42.7 (4)	41.3 (5)	39.7 (6)	38.3 (7)	37.5 (9)	36.5 (10)	34.9 (11)	33.1 (11)	31.5 (11)
1974	30.2 (10)	28.9 (11)	28.0 (11)	27.2 (12)	26.7 (12)	25.8 (13)	24.6 (12)	23.1 (12)	21.5 (12)	20.0 (12)	18.6 (12)	17.5 (12)
1975	16.6 (12)	15.6 (12)										

For each month, the upper figure is the observed or predicted Zürich smoothed sunspot number. The lower figure in parenthesis is the corresponding absolute value of the 90% prediction interval, an indication of the uncertainty above and below the predicted number. Observed numbers are those with no prediction intervals. The observed smoothed sunspot numbers are based on final Zürich numbers through 1972.

The predicted sunspot numbers are derived from a regression analysis based on cycles 8 through 19. Tests indicate that earlier cycles are from a different statistical population. From July 1968 - February 1970 a regression analysis based on cycles 1 through 19 was used because it had not then been proven that two populations exist.

SOLAR FLARES

PARTIAL LISTING

Solar Flares for which at least one observatory has assigned a numerical importance of "1" or greater.

AUGUST 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE AUG	START	END	MAX. PHASE	APPROX. LAT.	APPROX. HER. DIST.	CENTRAL DISTANCE	MONATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
ATHN	01	0640	0655D	0644	S07	W11	.290		31.5	15D	SN	2	C		.66				F
CATA	01	0640	0720	0645	S04	W13	.280		31.3	40	SB	3	C	0645	1.16	1.20		(214)	Z
TEHR	01	0641	0656	0644	S06	W08	.246		31.7	15	SN	3	C		.45				F
BUCA	01	0644E	0708D		S05	W11	.265		31.5	24D	SN		P	0648	1.10	1.10			
WEND	01	0647	0658		S05	W09	.242	12461	31.6	11	1F		V		3.09				
TEHR	02	0407E	0448	0410U	S08	W20	.411		31.7	33D	SN	4	V		1.34				F
ATHN	02	0418E	0439	0410U	S07	W23	.443		31.4	29D	SN	2	C		.83				F
MITK	02	0411E	0449D		S08	W23	.451	12460	31.4	38D	1N		C	0411	2.17	2.40			E
PALE	02	0432E	0442D	0433	S08	W24	.464		31.4	10D	SN	2	C		1.34				F
CATA	03	0618E	0640	0610	S14	E60	.889		7.8	30D	SN	3	P	0610	.58	1.26		(178)	
MITK	03	0615	0626D	0618	S12	E63	.907	12472	8.0	11D	1N		C	0618	1.13	2.60			D
ATHN	03	0615	0630	0620	S13	E66	.929		8.2	15	SN	3	C		.33				DE
MITK	03	2240E	2316	2242	S22	E49	.824	12472	7.6	36D	1N		C	2242	1.96	3.40			E
WEND	05	1629	1645D		N06	E04	.069	12474	6.0	16D	1F		P		3.09				
MITK	06	0129E	0237D	0145	N06	W02	.035	12474	5.9	68D	1N		C	0145	2.27	2.30			
MANI	06	0137E	0212D	0155	N08	W02	.048		5.9	35D	SN	2		0155	1.96	1.96			FU
PALE	06	0146	0220D	0153	N06	W01	.017		6.0	34D	SN	1	C		1.08				F
WEND	06	0502	0544D		N07	W04	.071	12474	5.9	42D	1N		P		5.16				
UPIC	06	0540E	0547	0543	N07	W05	.088		5.9	7D	SF		P	0543	1.26				T
CATA	06	0605E	0730D	0625	N07	W05	.088	12474	5.9	85D	1B	3	P	0625	4.05	4.07		(309)	TZ
WEND	06	0624E	0743		N07	W05	.088	12474	5.9	79D	2N		V		7.22				
ATHN	06	0625	0659	0629	N07	W04	.071		6.0	34	SN	2	C		1.32				F
TEHR	06	0627E	0644	0629	N06	W06	.104		5.8	17D	SB	4	V		.99				U Z
BUCA	06	0628E	0705D		N07	W04	.071	12474	6.0	37D	1N		P	0629	2.76	2.60			
UPIC	06	0630E	0639	0632	N07	W06	.105	12474	5.8	9D	1N		P	0632	2.31				T
MANI	06	0642E	0703D	0642U	N08	W05	.093		5.9	21D	SB	2		0642	1.24	1.24			F
CATA	06	0835	1000D	0846	N07	W06	.105	12474	5.9	85D	1B	3	P	0846	3.76	3.78		(263)	TZ
WEND	06	0837	1058	0843	N07	W05	.088	12474	6.0	141	2B		P		8.25				
ATHN	06	0839	0923	0843	N07	W07	.122		5.8	44	SB	2	C		1.49				F
MEUD	06	0843E	0900		N07	W06	.105		5.9	17D	SN		C	0845	1.03	1.00			E
UPIC	06	0845E	0856		N08	W04	.077		6.1	11D	SF		P	0845	.85				T
TEHR	06	0848E	0930	0852	N06	W06	.104		5.9	42D	SB	4	V		1.55				F
UPIC	06	0918E	0954U		N08	W02	.048		6.2	36U	SN		P	0936	.63				T
UPIC	06	0918E	0954U		N07	W07	.122		5.9	36U	SN		P	0936	1.68				T
TEHR	06	0945E	1010	0950	N06	W06	.104		6.0	25D	SN	3	V		.52				F
RAMY	06	1026E	1138	1028U	N06	W09	.156		5.8	42D	SF	3	C		1.03				F
MCMA	06	1150E	1449		N06	W09	.156	12474	5.8	179D	SN		C	1201	1.03	1.00			ELK
TEHR	06	1231E	1300	1231U	N06	W06	.104		6.1	29D	SN	3	V		.21				F
WEND	06	1338E	1438D		N07	W11	.190	12474	5.7	60D	1F		V		3.09				
TEHR	06	1358E	1438	1415	N06	W06	.104		6.1	32D	SN	4	V		.41				F
RAMY	06	1403	1434	1408	N06	W10	.173		5.8	31	SN	3	C		1.49				F
CATA	06	1405	1455	1425	N07	W09	.156	12474	5.9	50	1N	3	C	1425	3.76	3.81		(178)	TZ
UPIC	06	1408	1428	1414	N08	W11	.192		5.8	20	SN		P	1414	.85				T
UPIC	06	1408	1439U		N08	W08	.142		6.0	31U	SF		P	1413	.42				EKT
ATHN	06	1409E	1432	1411	N07	W09	.156		5.9	23D	SN	2	C		.99				F H
UPIC	06	1436	1446		N07	W07	.122		6.1	10	SN		P	1439	.42				T
MCMA	06	1619	1654D	1624	N06	W11	.190	12474	5.9	35D	SN		C	1624	1.44	1.50			EH
WEND	06	1620E	1650D		N07	W13	.224	12474	5.7	30D	1F		V		3.09				
CATA	09	0940	1035	0940	N18	W79	.977	12471	3.5	25	1N	3	C	0940	.58			(162)	T
TEHR	09	0940	0959	0944	N13	W73	.951		3.9	19	SN	3	C		.21				DE
ISTA	09	0941	1008		N16	W74	.956		3.9	27	SF								
MITK	10	0014	0034	0016	N07	W55	.815	12474	5.9	20	1N		C	0016	1.34	2.30			
MANI	10	0018E	0037	0021	N10	W53	.794		6.0	19D	SN	1		0021	.93	1.49			H
PALE	10	0028E	0039D	0029U	N07	W53	.795		6.0	11D	SN	2	V		1.24				F
MEUD	21	1344E	1430		N10	E90	1.000	12497	28.3	46D	2N		C	1359	3.09				
MCMA	21	1405E	1435	1407	N14	E90	1.000	12497	28.3	30D	1F		P	1407					A
ATHN	25	1310E	1322	1311	N10	W28	.467		23.4	12D	SN	3	C		.50				DE
UPIC	25	1313E	1317U		N14	W25	.431		23.7	4U	SF		P	1313	.63				
UPIC	25	1313E	1317U		N12	W29	.485	12488	23.4	4U	1F		P	1313	2.10				F
RAMY	25	1314	1329	1316	N12	W27	.455		23.5	15	SF	3	C		.37				F
ATHN	31	0750	0759D	0754	S15	E48	.793		3.9	9D	SN	3	V		.83				DE
MEUD	31	0754E	0802		S16	E47	.788		3.9	8D	SN		C	0757	.52	.80			CD
TEHR	31	0755E	0807	0759	S16	E47	.788		3.9	12D	SN	4	V		.83				F
CATA	31	0800E	0800D	0800	S17	E47	.792	12507	3.9		1N	3	P	0800	1.44	2.37		(170)	

"Remarks":
A = Eruptive prominence, base at >90°
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No spots visible in the neighborhood.
H = Flare with high velocity dark surge.
I = Very extensive active region.
J = Plage with flare shows marked intensity variations.
K = Several intensity maxima.
L = Filaments show effects of sudden activation.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H or K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line.
S = Brightening follows disappearance of filament (same position).
T = Region active all day.
U = Close and somewhat parallel bright filaments (|| or Y shape).
V = Occurrence of an explosive phase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα emission.
Y = Onset of a system of loop-type prominences.
Z = Major sunspot umbra covered by flare.

Note: Catania and Capri-S express Maximum Intensities in percent of the local undisturbed chromosphere instead of percent of the local continuum. Parentheses are used to indicate this difference.

SOLAR FLARES

Date, time (UT) and coordinates of Subflares not included in preceding table.

AUGUST 1973

01	0405E	S06	W09	01	1139	S09	W15	01	1142	S12	W06	01	1151E	S07	W15
01	1809E	S11	E82	01	1909E	S13	E85	01	1910	S06	W18	02	0229E	S07	W22
02	0448E	S10	E70	02	1250	S11	E64	02	1252E	S13	E74	02	1843	S09	W31
03	0446	S08	E70	03	2151E	S06	W47	04	0233E	S08	E44	04	0236	S09	E46
04	0650	S14	E46	04	0725	S14	E46	04	1410	S08	W59	04	1458	S05	W61
05	0227E	N06	E12	05	1837E	N06	E03	05	2336	N06	E01	05	2339E	N07	E00
06	0007	N06	E01	06	0017	N06	E01	06	0356	N06	W05	06	0400E	N06	W01
06	1719E	N05	W09	06	1856E	N08	W10	06	1933	N06	W10	06	1933E	N07	W13
06	2245E	N08	W13	06	2305E	N08	W10	06	2306	N06	W12	06	2306	N06	W12
06	2358	N06	W12	07	0000	N06	W11	07	0031	N08	W12	07	0034	N07	W13
07	0730	N03	W17	07	0730E	N08	W15	07	0906	S08	E52	07	1141	N06	W23
07	1425	N07	W24	07	1659E	N06	W28	07	1719	N04	W27	07	1814	N06	W24
07	1845	N09	W23	07	1914E	N06	W27	07	2021	N06	W24	07	2136E	S08	E45
08	0406	N06	W30	08	0515E	N05	W33	08	0631	N05	W30	08	0636E	N06	W31
08	1005	N09	W32	08	1009E	N06	W33	08	1705	N08	W36	08	1707	N16	W63
08	2306E	S08	W19	08	2340E	N08	W41	09	0341	N08	W44	09	0648E	N14	W74
09	1150	N11	W46	09	1151	N07	W48	09	1152	N08	W46	09	1154	N07	W45
09	1414	N07	W47	09	1414	N06	W48	09	1415	N07	W49	09	1415	N11	W47
09	1551	N07	W50	09	1551	N08	W49	09	2141E	N09	W51	09	2337E	S05	W33
09	2359	N09	W53	10	0151	N08	W55	10	0552	N08	W59	10	0717E	N15	W90
17	0825	N15	E85	17	0950	N13	W80	17	1432	N18	W18	17	1936E	N10	E71
20	1408	N12	E27	20	1826E	N18	E41	21	2325E	N14	W58	23	1656E	N16	E90
25	1750E	N11	W30	25	1751E	S12	W29	26	1445	N32	E35	27	0920	N04	E20
27	1040	N03	E19	27	1200	N03	E24	27	1658E	N11	W59	27	1658E	N11	W59
29	0948E	N13	W87	29	1122	N13	W84	29	1123E	N13	W84	29	1129E	N13	W90
29	1835	S17	E72	29	1843E	S14	E74	29	2230E	N02	W08	30	0215	S14	E16
30	1219E	S14	E06	30	1241	S13	E57	30	1245	S12	E61	30	1934E	S10	E55
30	2023	N15	E83	30	2041E	N17	E83	30	2309	S12	E52	30	2336E	N03	W23
31	0208	N14	E85	31	0305E	N13	E84	31	0559	S16	E51	31	1349	S11	E46
31	1408E	N15	E80	31	1417	S12	E44	31	1928	N14	E79	31	1930	N13	E83

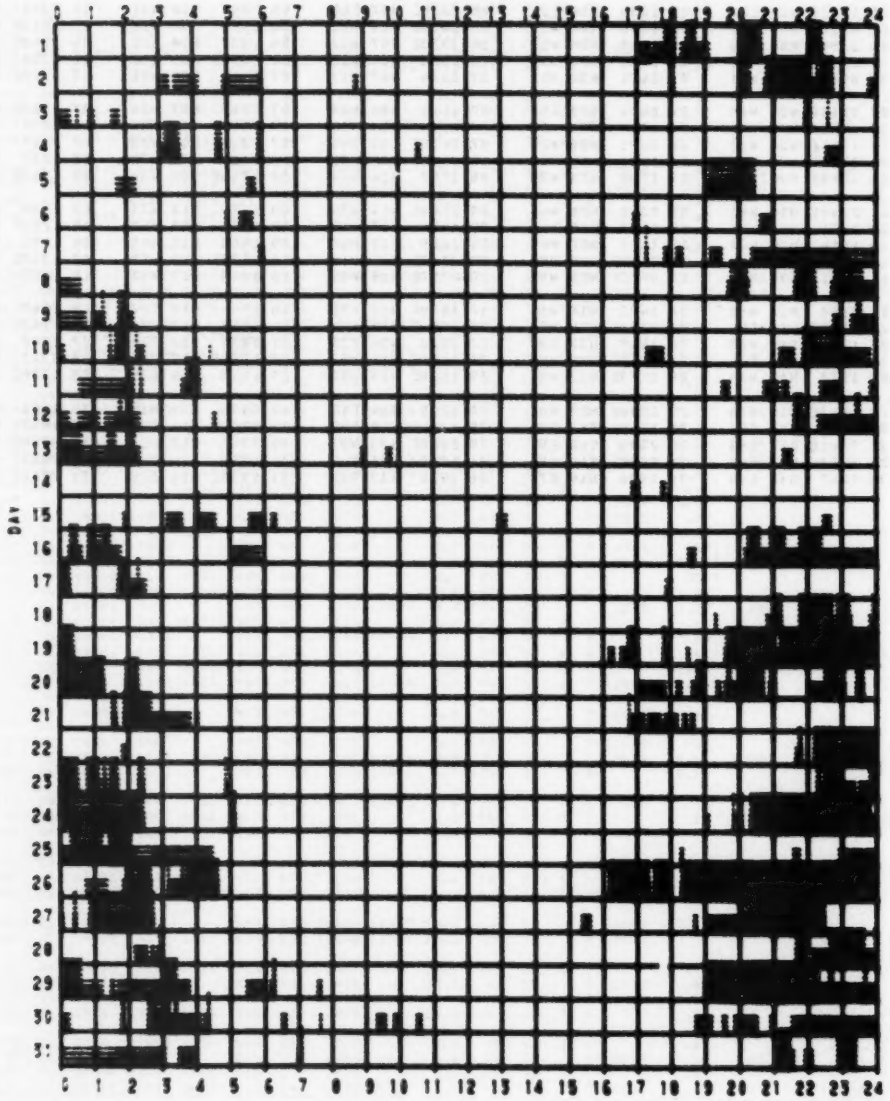
01	1416	S10	E79	01	1809E	S06	W18	02	0239	S10	W74	02	0443	S09	E70
02	1844	S07	W31	03	0400	S09	W22	04	0626E	N04	E25	04	0630	N06	E21
04	2217	N14	E62	05	0155E	S07	W64	05	2355	N08	W61	05	2358	N10	W59
06	1500	N06	W10	06	1713E	N06	W12	06	1937	N08	W11	06	2240E	N06	W15
06	2358E	N08	W60	06	2358	N06	W12	07	0143	N06	W16	07	0258E	N06	W17
07	1245	N07	W24	07	1310E	N06	W24	07	1837	N06	W23	07	1837	N06	W23
07	2307	N07	W29	07	2315	N07	W29	08	0920	N09	W37	08	1002	N04	W29
08	1709E	N06	W36	08	1912E	N08	W38	09	1026	N13	W73	09	1130	N14	W77
09	1159	N07	W47	09	1256E	N16	W85	09	1550	N11	W48	09	1551	N09	W49
09	2337E	N09	W52	09	2347E	S08	W34	10	0749	N15	W90	10	0855	N12	W90
18	1544	N15	E69	18	1547	N17	E67	20	0710	N12	W21	25	1743E	N12	W32
27	0923	N03	E20	27	1040	N03	E20	28	0322	N03	E16	29	1726E	S14	E73
30	0900	N04	W18	30	1100	N04	W18	30	1939E	S11	E54	30	1952E	N02	W06
30	2346	S12	E52	30	2355E	S08	E52	31	1350	S14	E43	31	1407E	N13	E74
31	1930E	N16	E76	31	2202E	N04	W19								

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

AUGUST 1973

HOUR-UT



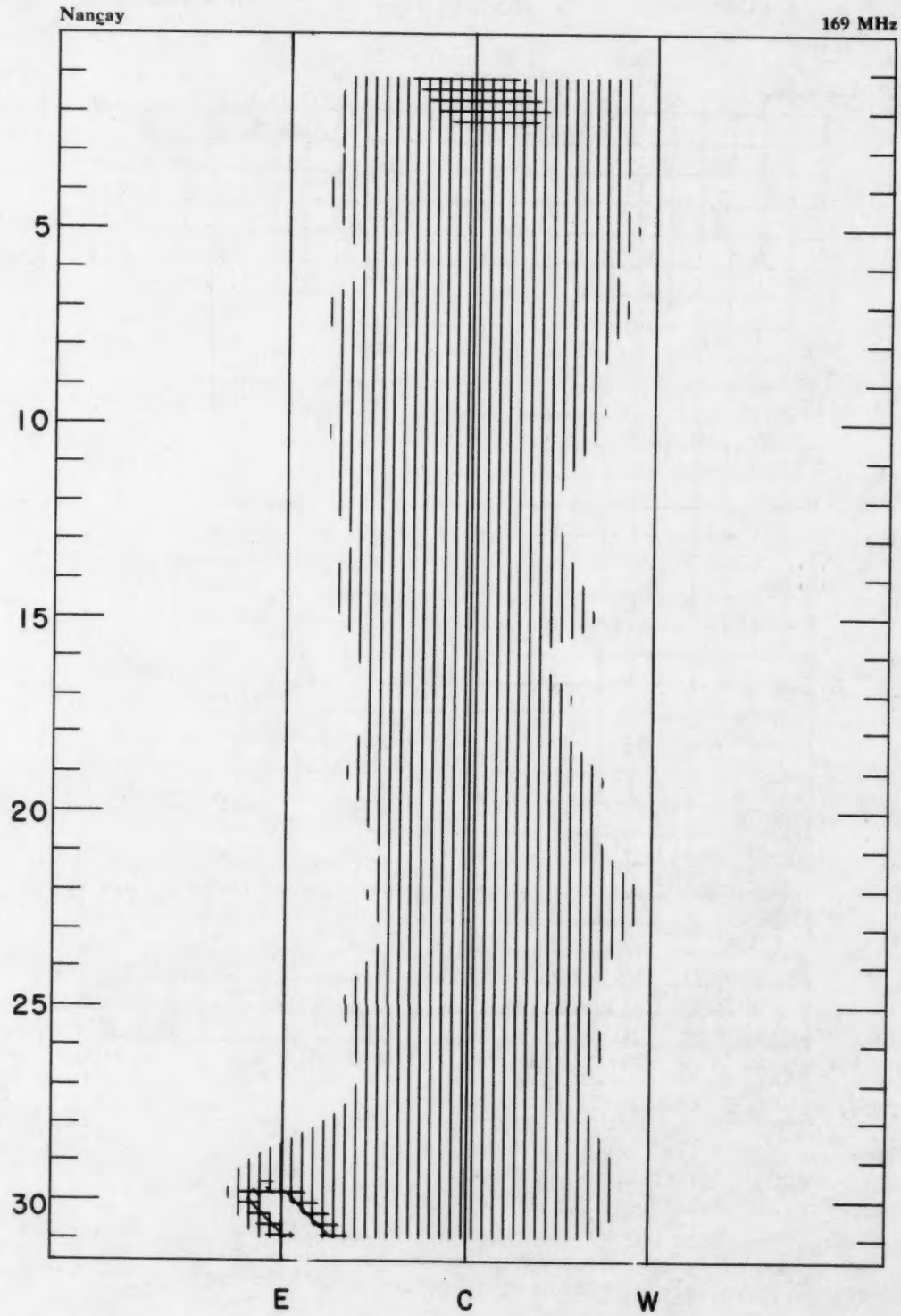
Observatories included in total patrol:

Athenes	Herstmonceux	McMath-Hulbert	Palehua	Upice
Bucharest	Istanboul	Meudon	Ramey	Wendelstein
Catania	Manila	Mitaka	Teheran	

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

AUGUST 1973



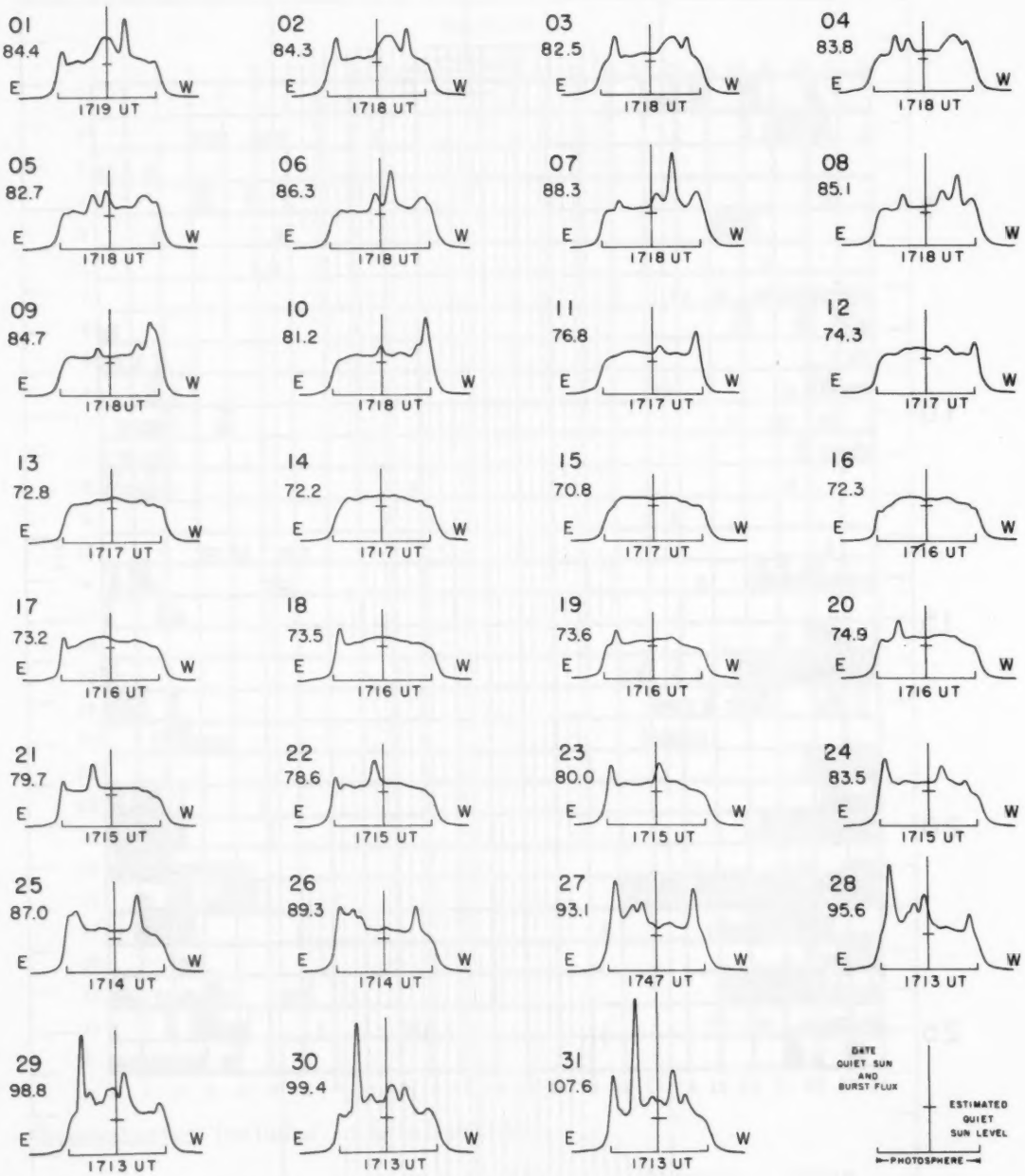
14
Aug 73

EAST-WEST SOLAR SCANS

August 1973

ALGONQUIN RADIO OBSERVATORY
CANADA

Fan-Beam with 1.5 minutes of arc
E-W Resolution



EAST-WEST SOLAR SCANS

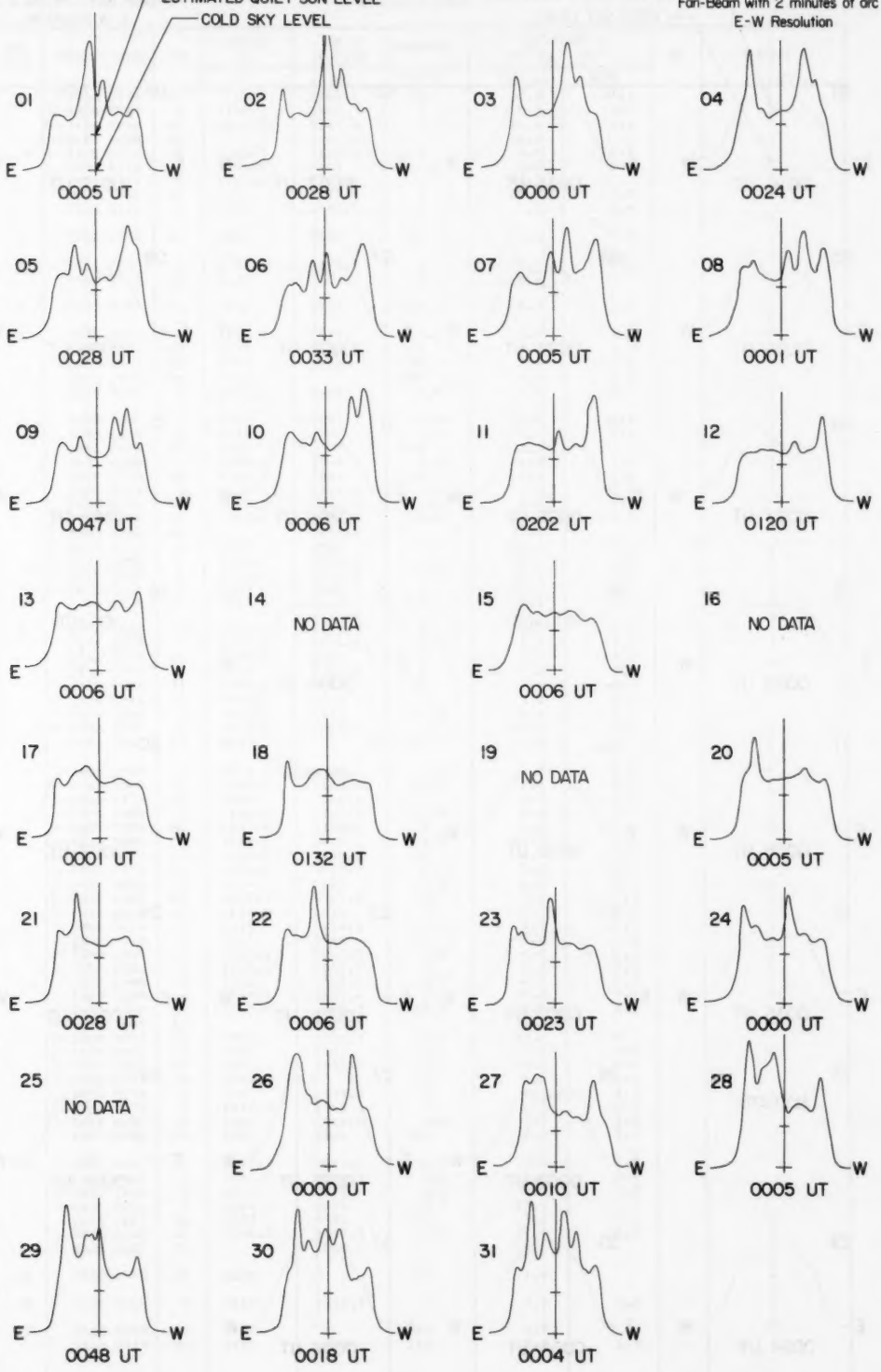
AUGUST 1973

Fleurs, Australia

ESTIMATED QUIET SUN LEVEL

COLD SKY LEVEL

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution



16
Aug 73

EAST-WEST SOLAR SCANS

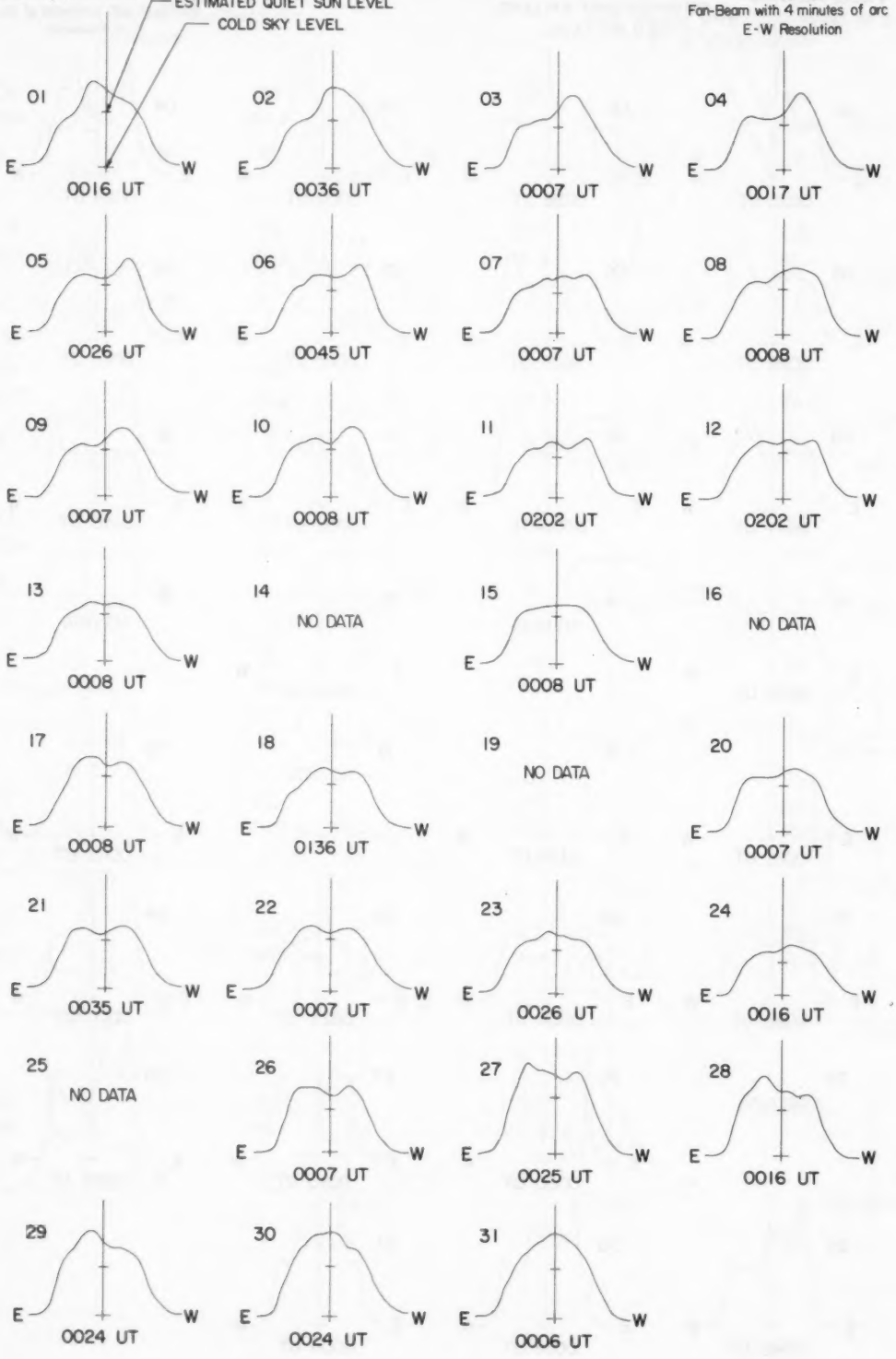
AUGUST 1973

Fleurs, Australia

ESTIMATED QUIET SUN LEVEL

COLD SKY LEVEL

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1973

AUG. 1973	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
1	2800 OTTA	21	1125	1146.5	75	2.2	1.1		
	8800 SGMR	2	1140.2	1141	2	5.3	1.7		
	2695 SGMR	46	1140.5	1140.9	1.7	10.8	8.2		
	2695 SGMR	46		1141.5		26.0			
	2800 OTTA	2	1140.7	1141.5	2	5.6	2.8		
	2800 OTTA	2	1140.9	1141	.6	6.0	3.0		
	2800 OTTA	8	1141.6	1141.6		21.6			
	2695 CANR	45	1141	1142.5	3	26.0	7.0		
	2800 OTTA	1	1753	1753.5	5	.8	0.4		
2	2800 OTTA	20	1843	1851	80	1.4	0.8		
3	2695 PENT	1	2235.1	2235.7	1	1.2	0.6		
	2800 OTTA	24	2236		6	1.6			
5	2695 PENT	20	2332	2405	110	2.2	1.6		
6	2695 MANI	2	0623.9	0625	7.2	7.5	3.0		
	2800 OTTA	22	1116	1420	310	4.4	2.8		
	2800 OTTA	20	1715	1722	20	2.2	1.0		
	2800 OTTA	23	1930		380	3.8	2.7		
	2695 PENT	1	2359.5	2400	1.5	1.6	0.8		
7	2695 BOUL	3	0000	0001	1.5	3.0	1.0		
	2695 CANR	3	0730	0731	1.5	4.0	1.0		
	2800 OTTA	27	1120		275	3.1			
	2695 SGMR	1	1309.1	1309.2	1.3	6.8	2.1		
	2800 OTTA	23	1745	1840	70	2.4	1.2		
	2800 OTTA	1	1816	1816.2	.5	.8	0.4		
	2800 OTTA	1	1840.5	1840.7	.5	2.4	1.2		
	8800 SGMR	46	1845.4	1845.8	4.3	17.1	4.3		
	8800 SGMR	46		1846.2		15.6			
	2800 OTTA	4	1845	1846	4	21.0	7.0		
	2695 SGMR	4	1844.9	1846.1	7.7	26.0	6.5		
	2695 CANR	8	1844.5	1846.5	2.5	28.0	8.0		
	2695 BOUL	8	1845	1846.5	4	27.0	8.0		
	2800 OTTA	20	1857	1925	165	3.8	1.9		
8	2695 CANR	3	1002	1002.5	1	3.0	1.0		
	2695 SGMR	1	1254.3	1254.6	1.4	3.2	1.3		
	2800 OTTA	45	1704.9	1705	1	1.4	0.7		
	2800 OTTA	45	1707	1707.5	2	1.8	0.9		
	2800 OTTA	31	1709.5	1713	10	- .8	-0.4		
	2800 OTTA	2	1912.5	1913	1	7.2	2.4		
	2695 SGMR	2	1912.8	1913	.8	8.6	2.1		
	2695 BOUL	8	1912.5	1913.5	1	10.0	3.0		
	2695 PENT	27	2230		145	1.6			
9	2695 CANR	3	1059	1100	1.5	3.0	1.0		
	8800 SGMR	22	1150.3	1152.3	11.8	12.9	3.2		
	2800 OTTA	46	1150	1151.1	7	6.0	3.0		
	2695 SGMR	2	1150.8	1151.1	7.6	6.8	1.7		
	2695 CANR	45	1151.5	1152.5	7	7.0	2.0		
	8800 SGMR	4	1414.7	1416	4.4	20.2	5.1		
	2800 OTTA	21	1413.5	1416.8	10	2.0	1.0		
	2800 OTTA	2	1414.5	1415.6	2	4.8	2.4		
	2695 SGMR	2	1414	1415	5.8	6.0	1.5		
	2695 CANR	45	1413.5	1415.5	6.5	7.0	2.0		
	2695 BOUL	45	1414.5	1416	5	8.0	2.0		
	2800 OTTA	1	1418	1418.3	1	1.0	0.5		
	2800 OTTA	1	1545	1546	3	3.8	1.6		
	2695 SGMR	1	1545.3	1545.8	3.8	4.6	1.2		
	2695 BOUL	3	1545.5	1546.5	3	5.0	2.0		
	2695 CANR	3	1546	1546.5	3.5	6.0	2.0		
	8800 SGMR	4	1550.4	1552.4	7.1	30.8	7.7		
	2695 SGMR	46	1549.9	1550.7	10.2	26.0	6.5		
	2695 SGMR	46		1552.4		11.4			
	2800 OTTA	46	1550	1550.7	3.5	25.6	8.1		
	2695 BOUL	45	1550	1551	7	27.0	4.0		
	2695 CANR	45	1551	1551.5	5.5	26.0	5.0		
	2800 OTTA	29	1553.5		4	3.0	1.5		
	2800 OTTA	2	2121	2123.2	5	1.8	0.8		
	2800 OTTA	2	2141.9	2142	3	2.0	0.9		
	2695 BOUL	3	2142	2142.5	2.5	3.0	1.0		
	2695 PENT	23	2205	2345	140	2.6	1.2		
10	2695 PENT	1	0013.7	0014.3	1.5	7.2	3.6		
	2695 MANI	1	0013.7	0014.4	1.4	6.0	2.4		
	2695 CRON	3	0014	0015	2.5	7.0	3.0		
	2695 BOUL	8	0014	0015	1.5	10.0	3.0		
	2695 PENT	20	0033	0050	27	1.2	0.6		
	8800 SGMR	45	1846.5	1847.3	2.7	25.2	14.6		
	8800 SGMR	45		1848.4		44.1			
13	2800 OTTA	24	2000		85	1.4			
16	2695 BOUL	3	1316	1318.5	5	7.0	3.0		
21	2800 OTTA	23	1325		245	1.5			
	2800 OTTA	20	1325	1600	245	2.2	1.4		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1973

AUG. 1973	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
	2800 OTTA	25	1730		500	1.5			
25	2800 OTTA	20	1305	1350	155	2.0	1.0		
	2800 OTTA	27	1735		140	1.8			
26	2695 CANR	8	0710	0712	2.5	4.0	1.0		
	2800 OTTA	27	1445		135	.8			
27	2800 OTTA	24	1700		12	2.0			
	2800 OTTA	27	1750		155	1.4			
29	8800 SGMR	4	1834.4	1835.2	4.1	24.6	8.2		
	2800 OTTA	1	1852	1855	6	2.0	1.0		
	2800 OTTA	20	2050	2110	110	2.6	1.4		
30	2800 OTTA	21	1925	1950	65	1.4	0.7		
	2800 OTTA	1	1933	1936	3	1.4	0.7		
	2695 BOUL	3	2350.5	2351	1.5	4.0	1.0		
31	2800 OTTA	24	1235		75	3.6			
	2800 OTTA	20	1410 E	1418	25 D	2.6			
	2800 OTTA	20	1700	1745	90	.9	0.5		
	8800 SGMR	2	1930.3	1930.7	3	5.9	1.5		
	2800 OTTA	3	1930	1930.7	3.5	17.0	4.2		
	2695 SGMR	4	1930.2	1930.7	5.7	19.4	4.9		
	2695 BOUL	8	1930	1931	4	18.0	7.0		

Observatories:

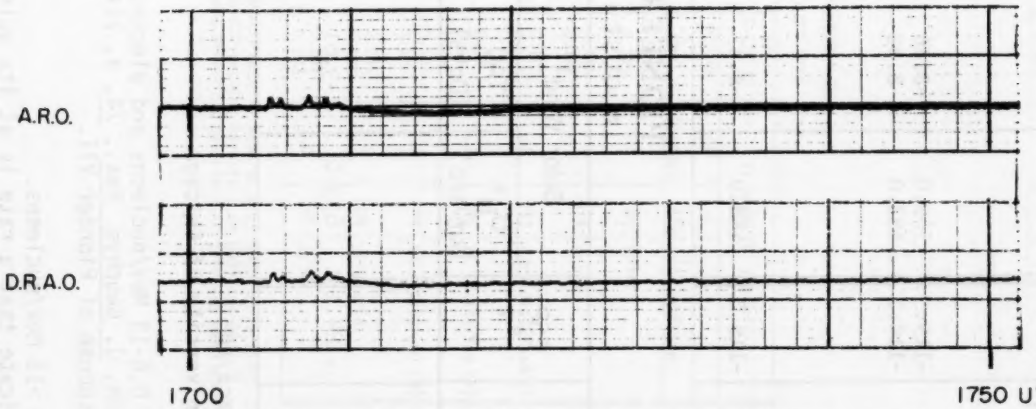
BOUL = Boulder CRON = Carnarvon OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill
CANR = Canary Islands MANI = Manila

Explanation of Type Code:

1 Simple 1 6 Minor 22 Simple 3F 27 Rise and Fall 32 Absorption 44 Noise storm in Progress
2 Simple 1F 7 Minor + 23 Simple 3AF 28 Precursor 40 Fluctuation 45 Complex
3 Simple 2 8 Spike 24 Rise 29 Post Burst Increase 41 Group of Bursts 46 Complex F
4 Simple 2F 20 Simple 3 25 Rise A 30 Post Burst Increase A 42 Series of Bursts 47 Great Burst
5 Simple 21 Simple 3A 26 Fall 31 Post Burst Decrease 43 Onset of Noise Storm 48 Major
49 Major +

SELECTED SOLAR NOISE BURSTS

AUGUST 8, 1973



Radio Burst Observed 8 August 1973 at Ottawa and Penticton.

PIONEER VI

AUGUST 1973

Date Aug. 1973	Time (UT)	ESP (°)	Solar Wind[1]		Cosmic Ray Protons[2] (particles/sec)		
			U_H^+ (km/sec)	TAU (Days)	0.6-13 Mev*	13-175 Mev**	>175 Mev
20							
21							
22							
23							
24	0100	-119.3	566.0	-8.86	.88	Q	Q
25	2100	-119.3	383.0	-8.82	2.36	Q	Q
26							
27							
28							
29							
30							
31	2100	-119.3	448.0	-8.83	.585	Q	Q

PIONEER VII

AUGUST 1973

Date Aug. 1973	Time (UT)	ESP (°)	Solar Wind[1]		Cosmic Ray Protons[2] (particles/sec)		
			U_H^+ (km/sec)	TAU (Days)	0.6-13 Mev*	13-175 Mev**	>175 Mev
20							
21							
22							
23	2200	-124.1	613.0	-9.61	--	--	--
24							
25							

[1] Wolfe - NASA/ARC
[2] Simpson - University of Chicago

* Includes He 0.6-13 Mev/nucleons and electrons ∿0.5 Mev - see J. Retzler and J. A. Simpson, J. Geophys. Res., 74, 9, 2149-2160, 1969 for discussion of the electron response of Pioneer VII.

** Includes He >13 Mev/nucleons.
Q Used to indicate that a rate is at its quiescent level.

Note: The notes published with the March 1972 data continue to apply to the current data.

ESP = Earth-Sun Probe Angle.

PIONEER VIII

AUGUST 1973

DATE AUG. 1973	TIME (UT)	ESP (°)	SOLAR WIND[1] U_{H^+} (km/sec)	N_{H^+} (H^+/cc)	T_{H^+} (x10⁶°K)	TAU (Days)	IP E-FIELD[2] 400 Hz (mv)	IP MAGNETIC FIELD[3] /B/ (Gamma)	φ (°)	Condition	COSMIC RAY PROTONS[4] (particles/sec) >13.9 Mev	>64 Mev
25	0000	114.8	271	4.83	.023	8.19	0.672	2.4	147	very quiet	7.2	1.29
28	0200	115.1	355	1.87	--	8.31	0.301	4.9	163	very quiet	7.13	1.2
	0600		378	2.21	--		0.302				6.96	1.19

[1] Wolfe - NASA/ARC
[2] Scarfe - TRW, Inc.
[3] Ness - NASA/Goddard & Mariani - Univ. of Roma
[4] Webber - Univ. of N.H.

ESP = Earth-Sun Probe Angle.

PIONEER IX

AUGUST 1973

DATE AUG. 1973	TIME (UT)	ESP (°)	SOLAR WIND[1] U_{H^+} (km/sec)	N_{H^+} (H^+/cc)	T_{H^+} (x10⁶°K)	TAU (Days)	IP E-FIELD[2] 400 Hz (mv)	IP MAGNETIC FIELD[3] /B/ (Gamma)	φ (°)	Condition	COSMIC RAY PROTONS[4] (particles/sec) >13.9 Mev	>40 Mev
1	0600	-039.7	640	0.73	0.19	-2.72	0.275	6.5	156	quiet	9.8	1.33
	1000		637	0.98	--		0.279				9.37	1.37
8	0500	-040.4	372	2.1	0.10	-2.66	0.125	7.1	319	quiet	5.81	1.02
	0900		380	1.8	--		0.133				5.95	.99
15	0400	-040.9	293	10.3	--	-2.69	0.121	3.8	231	very disturbed(1)	6.19	1.29
	0800		282	9.9	0.043		0.195				6.17	1.21
22	0400	-041.2	310	4.87	0.025	-2.8	0.19	5.8	196	sl. disturbed (2)	6.09	1.29
	0800		294	5.97	0.046		0.17				6.16	1.24
24	1600	-041.2	418	2.34	--	-2.89	0.133	3.8	248	sl. disturbed (3)	6.31	1.37
	2000		410	1.51	--		0.125				6.12	1.38
29	0400	-041.3	596	0.946	0.14	-2.98	0.286	4.9	134	very quiet	6.13	1.06
	0800		599	0.698	0.136		0.212				6.34	1.22
31	1400	-041.3	500	1.36	--	-297	0.151	7.0	157	quiet	6.14	1.21
	1800		544	1.17	0.317		0.133				6.1	0.97

[1] Wolfe - NASA/ARC
[2] Scarfe - TRW, Inc.
[3] Sonett and Colburn - NASA/ARC
[4] Webber - Univ. of N.H.

Notes: (1) With six Field Direction Reversals at 0400, 0630, 0700, 0736, 0800 and 0900 UT
(2) With two Field Direction Reversals at 0400 and 0600 UT
(3) With two Field Direction Reversals at 1700 and 2002 UT

ESP = Earth-Sun Probe Angle.

INFERRED IP MAGNETIC FIELD

ROTATION NO.			DAY IN SOLAR ROTATION 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	D	20	T	A	A	A	A	A	A	A	T	T	T	T	-	T	T	T	T	T	T	T	T	T	-	T	T	T
1972	J	26	T	A	A	A	A	T	T*	T	T	T	T	T	T	T	T	T	T	A	A	A	T	T	T	T	T	TA	A
1895	F	12	A	T	A	A	A	A	T	T	T	TA	A	-	A	T	T	T	T	TA	A	T	T	T	T	T	TA	A	A
	M	10	A	A	A	A	A	A	A	A	A	A	A	T	A	T	T	T	T	A	A	T	T	T	T	T	T	A	A
	A	6	A	T	T	A	T	T	T	T	T	T	T	T	T	A	T	T	A	A	A	A	A	-	A	A	T	TA	A
	M	3	A	A	A	-	A	T	T	T	T	T	T	T	T	A	A	T	A	A	A	A	A	T	A	T	T	A	T
	M	30	A	A	*	A	A*	T	T	A	T	T	T	A	-	-	-	-	-	T	-	A	A	T	T	T	T	TA	A
1900	J	26	A	A	A	A	A	A	A	AT	T	T	T	TA	A	T	T	A	A	A*	A*	A	T*	T	T	T	T	T	TA
	J	23	A*	A*	A*	A	A	A	A	A*	T	T	A	A	A	-	A	T	T	T	T	T	A	T	T	T	T	A	-
	A	19	-	-	A	A	A	A	A	T	A	A	A	A	T	A	A	A	T	T	T	T	A	A	T	A	A	A	-
	S	15	A	T*	A	A	A	A	A	T	A	A	A	-	-	-	-	-	T	T	T	T	T	-	T	A	A	A	T
	O	12	T	-	-	A*	T	T	T	A	A	T	A	A	A	A	A	A	AT	T	AT	T*	T	-	A*	AT	T	T	*	A
1905	N	8	A	A	A	AT	AT	AT	T	T*	A	A	A*	AT	A	A	AT	T	T	TA	T	T	T	A	A	A	A	AT	T
	D	5	T	T	AT	-	-	T	T	AT	-	T	T	A	-	-	T	TA	A	T	T	T	A*	T	T	T	T	AT	T
1973	J	1	T	T	T	T	T	T	T	-	AT	T	-	-	TA	A	A	A	A	A	T	-	-	T	-	T	-	T	T
	J	28	T	A	T	T	T	T	T	T	A	TA	A	A	AT	TA	AT	TA	AT	-	A	A	T	T	T	T	T	T	T
	F	24	T	T	TA	T	T	-	TA	A	A	T	A	A	A	AT	A	A	A	TA	A	A	TA	A	A	T	T	T	T
1910	M	23	T	T	T	A	T	T	T	TA	A	TA	A	A	-	A	A	TA	A	A	AT	T-	-	T	T	T	T	T*	T*
	A	19	T	AT	T-	T	T	T	A	T	T	TA	A	A	A*	A	AT	TA	A*	T	A	TA	T*	AT	A	T	A	T	A*
	M	16	T	T	T	T	T	T	TA	T	A	AT	T	A	A	A	A	A	A*	A	A	A	A	T*	-A	A	-	T	T
	J	12	T*	T	-	T	T*	A	T	T*	T*	T	T	AT	A	A	T	-	T	A	A	A	A*	AT	-	T	A	A	T
	J	9	T	T	A	T	T	A	T*	T*	A	AT	-	A	T	TA	T	T	T	A	A*	A	A*	TA	A	TA	T*	T*	T
1915	A	5	T	A	A	AT	A	T	T*	T	*	AT	T	AT	T	A	TA	T	T	A	A	AT	A*	AT	A	A	TA	A*	A

Inferred IP Magnetic Field

The table shows daily inferences of the polarity of the interplanetary magnetic field made from magnetograms produced by a tri-axis magnetometer located at the Thule Geopole Station of the Air Weather Service. The inference relies on the discoveries of Mansurov (Geomagn. Aeron., 9, 622-623, 1969) and Svalgaard (Geophys. Pap. R-6, 11 pp., Dan. Meterol. Inst., Copenhagen, 1968) relating the variation of the polar cap magnetic field to the polarity of the interplanetary field. It was originally believed that the radial component (BXM in Geocentric Solar Magnetospheric coordinate system) of the IP field determined the effect observed in the polar cap field, but recent evidence (Friis-Christensen, et al., J. Geophys. Res., 77, 371, 1972) indicate the responsible component may be BYM, the component in the ecliptic plane perpendicular to BXM. As long as the IP field remains in a normal Archimedes spiral, the variation in sign of BYM maps one-to-one with the variation of sign of BXM.

The notation adapted for the table is that BXM>0 (BYM<0) is represented by the symbol A (away from the sun) and BXM<0 (BYM>0) is represented by the symbol T (toward the sun). A day with two polarities indicates that an inferred change of sign occurred during the interval approximately 1200 UT to 2000 UT, when the effect is observable at Thule. An asterisk along with an A or T indicates days when the effect was somewhat doubtful, but one polarity seemed predominant. An asterisk alone indicates days when no clear polarity effect could be discerned. A dash indicates days when missing data prevented inference of the polarity.

JULY 1973 DATA

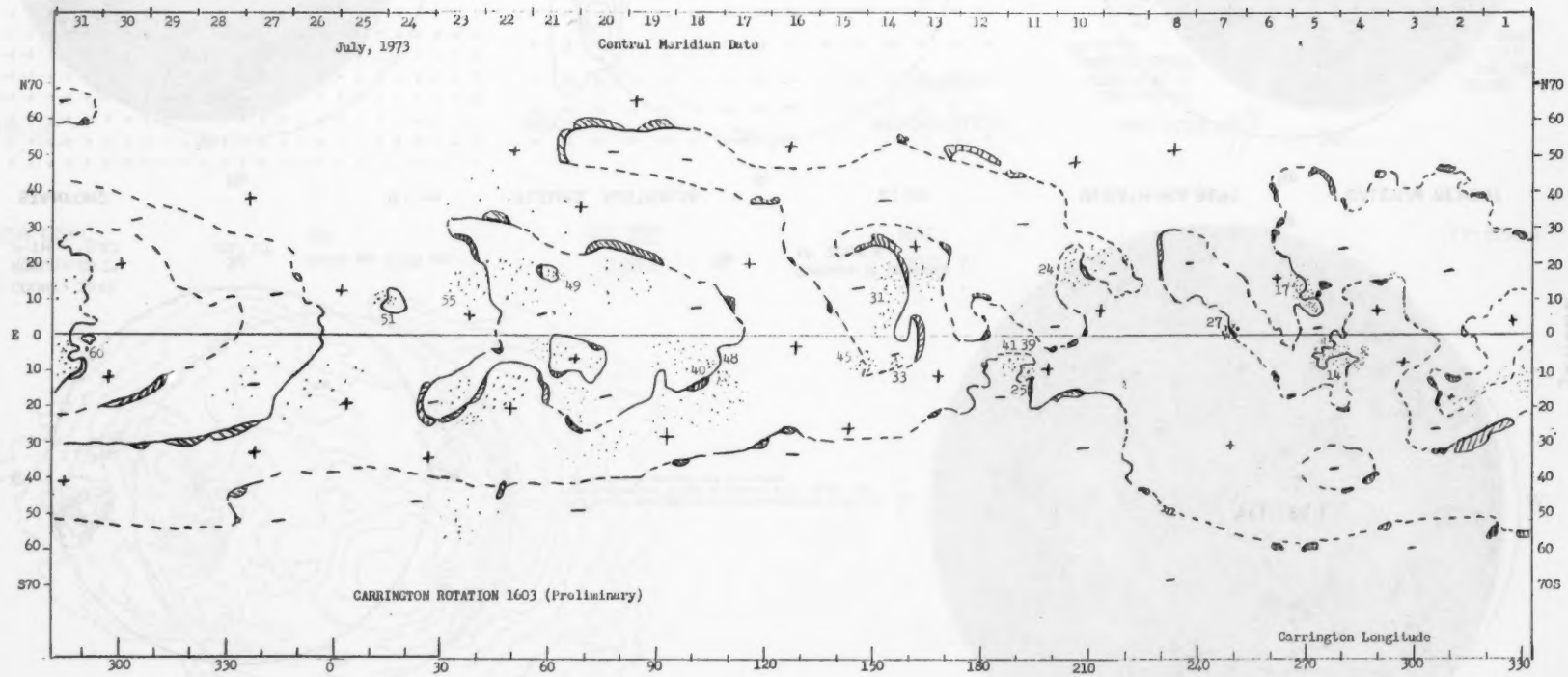
Contents

	Page
Daily Solar Activity Centers	
Hα Synoptic Chart	25
X-ray, 8.6 mm, 9.1 cm and 21 cm Spectroheliograms, Magnetograms, Calcium Plages, Hα Spectroheliograms, Sunspots, Corona and EUV Spectroheliograms	26-87
Individual Regions of Solar Activity	88-95
Daily Calcium Indices	95
Solar X-ray Radiation	
Naval Research Laboratory - Explorers 37 & 44	96-98
Sudden Ionospheric Disturbances	
Table of Events	99
Number of Events in each Plage Region	100
Solar Radio Waves	
Spectral Observations	101-108
Selected Events by Radioheliograph	109
Cosmic Rays	
Neutron Monitors Daily Values - Thule, Deep River, Calgary, Sulphur Mountain, Dallas	110
Chart of Variations - Thule, Alert, Deep River, Calgary, Sulphur Mountain	111
Geomagnetic Indices	
Table of Indices Kp, Ci, Cp, Ap	112
Chart of Kp by Solar Rotations and 12-Month Table of Daily Average Ap	113
Equatorial Indices Dst	114
Principal Magnetic Storms	115
Sudden Commencements and Solar Flare Effects	116
Radio Propagation Indices	
North Atlantic Quality Figures and Forecasts	118
Charts of North Atlantic Short-term Forecasts and Quality and High Latitude Advance Forecasts	119
Transmission Frequency Ranges - North Atlantic Path	120-121
Quality Indices on Germany-Canada Path	122

For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

Hα SYNOPTIC CHARTS

JULY 1973



25 Jul 73

JULY 1, 1973 (P=-2.76, B_o = 2.90, L_o = 332.53)

MT. WILSON

26 Jul 73

NASA GSFC
OSO-7

X-RAY
8-16A

COUNT = 3943
ROLL = 29.2°
P-TH = -6.63

1237 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

Note:
For several months beginning with December 1972 no 8.6 mm observations will be made at Prospect Hill. Repair and calibration of equipment are in progress.

Contours in Intervals of 200° K

Np

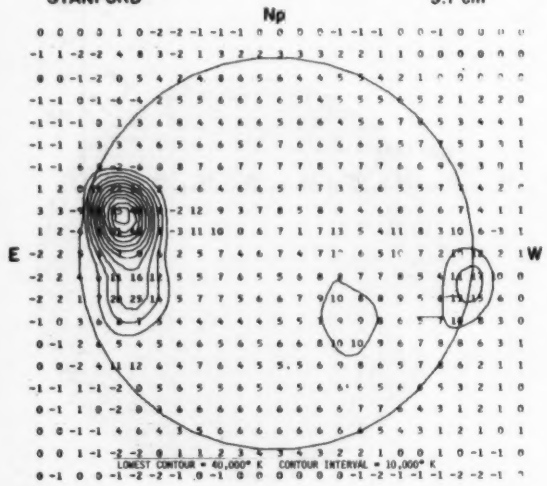
MAGNETOGRAM
Solid-Plus
Dotted-Minus

Levels
±5
±10
±20
±40
±80

Sp

STANFORD

9.1 cm

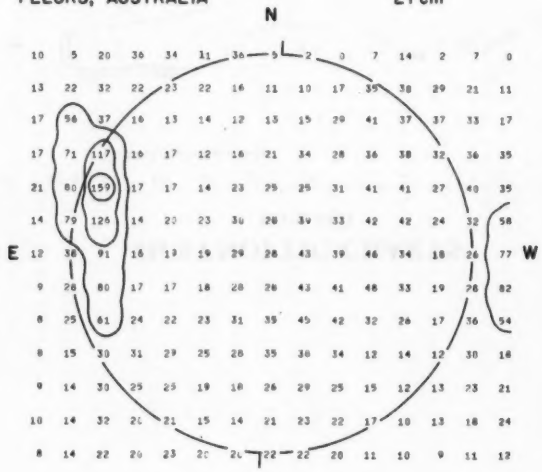


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

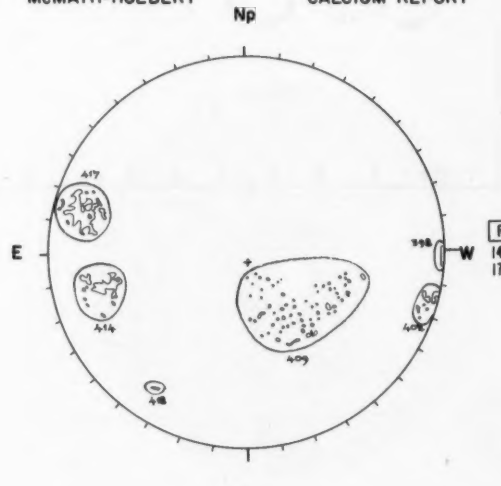


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

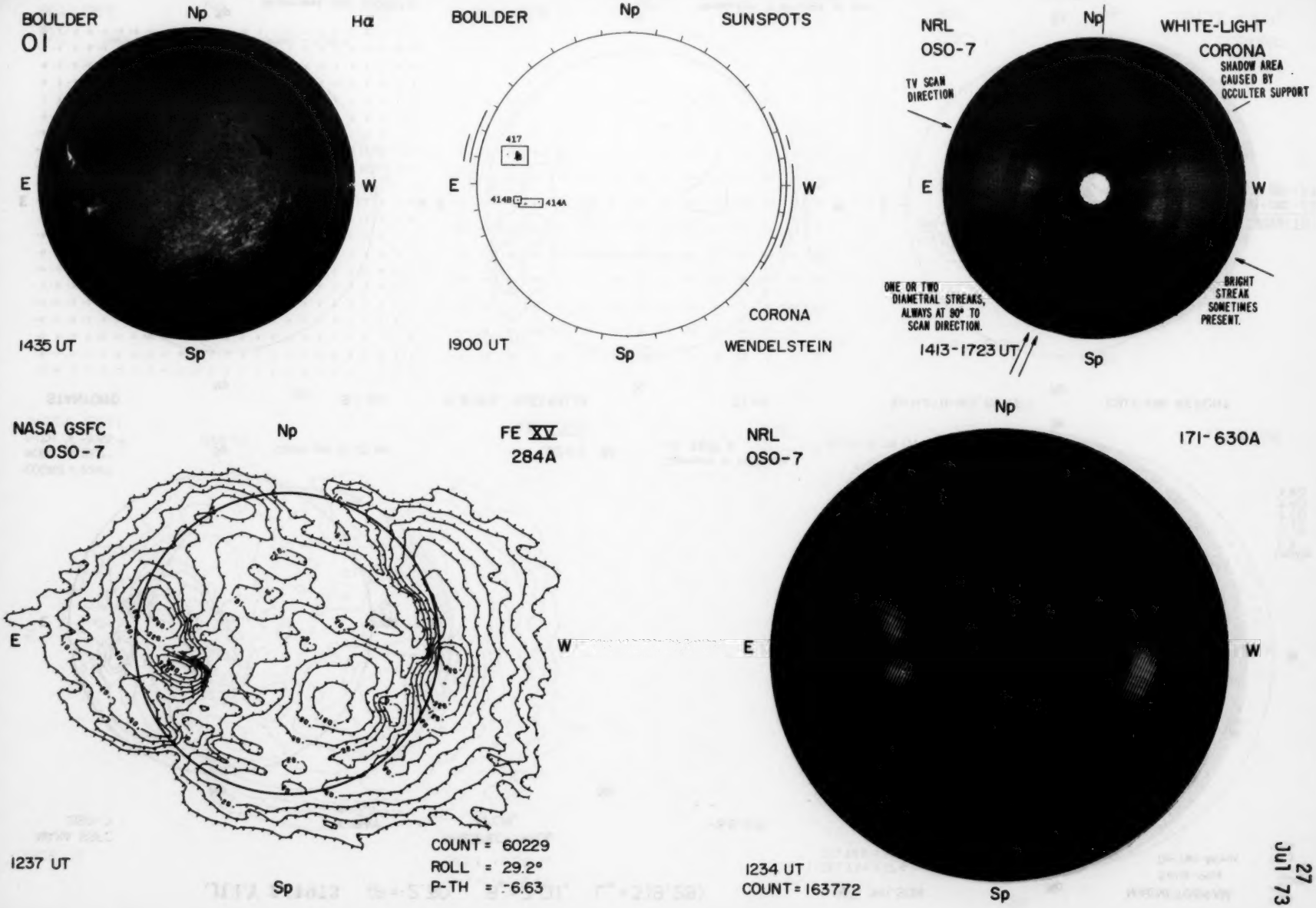


1230 UT

BOULDER

SUNSPOTS

WHITE LIGHT

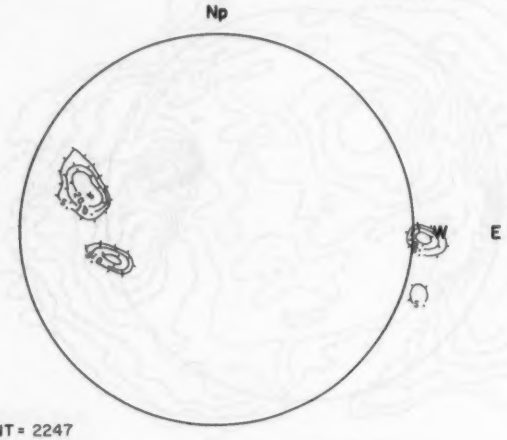

BOULDER
01
Np
Hα
E
W
Sp
1435 UT
BOULDER
Np
SUNSPOTS
417
E
W
414B
414A
CORONA
WENDELSTEIN
1900 UT
Sp
NRL
OSO-7
Np
WHITE-LIGHT
CORONA
SHADOW AREA
CAUSED BY
OCCULTER SUPPORT
TV SCAN
DIRECTION
E
W
ONE OR TWO
DIAMETRAL STREAKS,
ALWAYS AT 90° TO
SCAN DIRECTION.
BRIGHT
STREAK
SOMETIMES
PRESENT.
1413-1723 UT
Sp
NASA GSFC
OSO-7
Np
FE XV
284A
E
W
COUNT = 60229
ROLL = 29.2°
P-TH = -6.63
1237 UT
Sp
NRL
OSO-7
Np
171-630A
E
W
1234 UT
COUNT = 163772
Sp

27
Jul 73

JULY 2, 1973 (P=-2.30, B_o=3.01, L_o=319.29)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2247
ROLL = 28.7°
P-TH = -6.58

1206 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

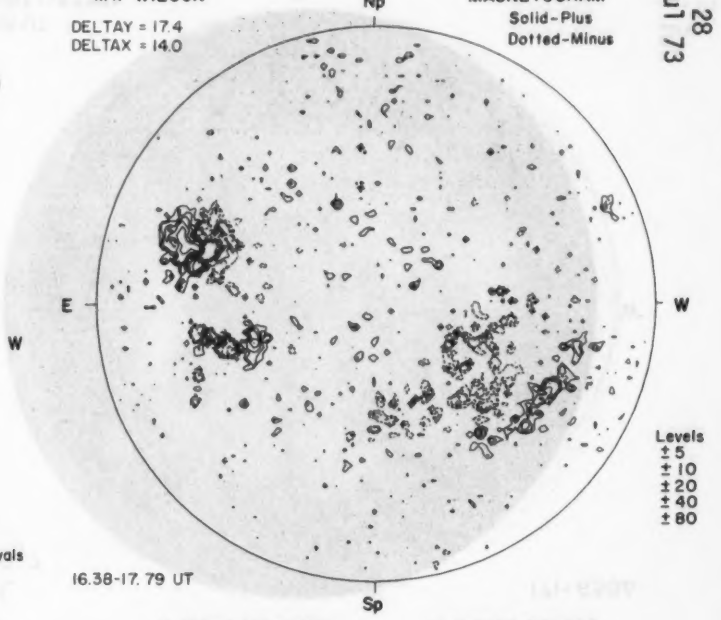
8.6 mm

Contours in Intervals of 200° K

MT. WILSON
DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

28 Jul 73

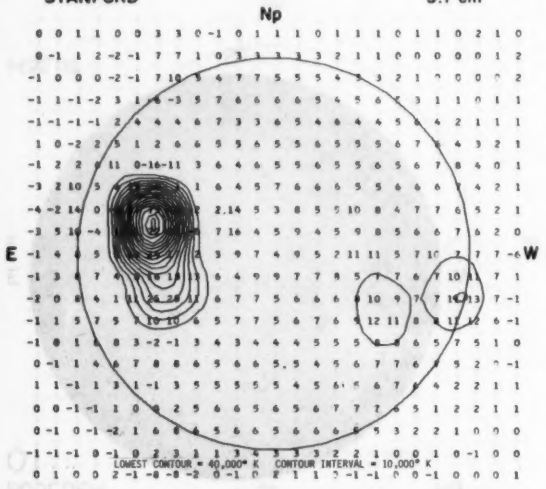


Levels
±5
±10
±20
±40
±80

16.38-17.79 UT

STANFORD

9.1 cm



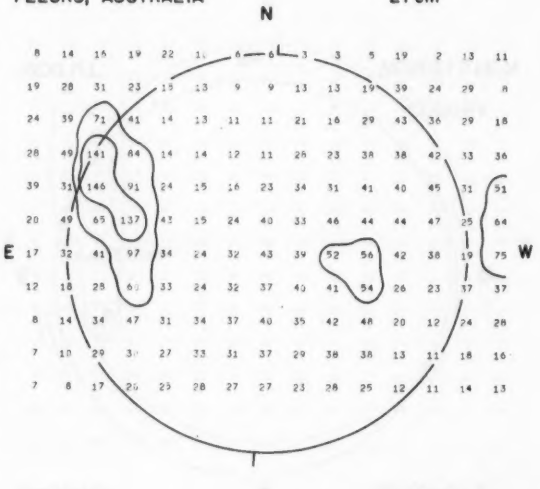
LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

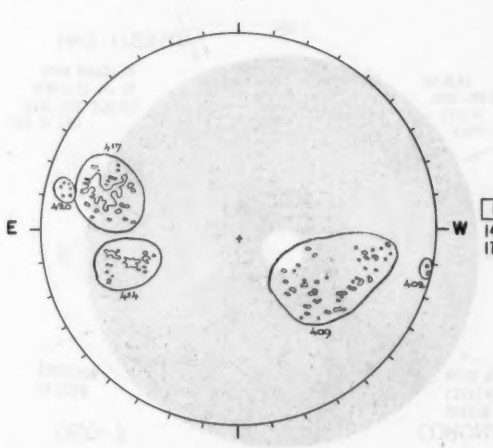


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

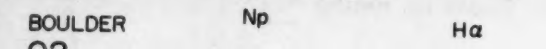
CALCIUM REPORT



POOR	D
14-1800	-3.0
17-4000	-3.5

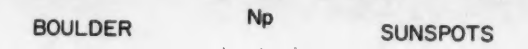
1200 UT

BOULDER



Hα

BOULDER



SUNSPOTS

NRL

WHITE-LIGHT

BOULDER
02

Np

Hα

E

NO DATA

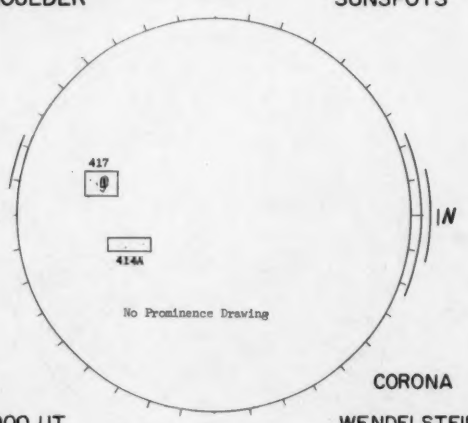
W

Sp

BOULDER

Np

SUNSPOTS



1900 UT

Sp

CORONA
WENDELSTEIN

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

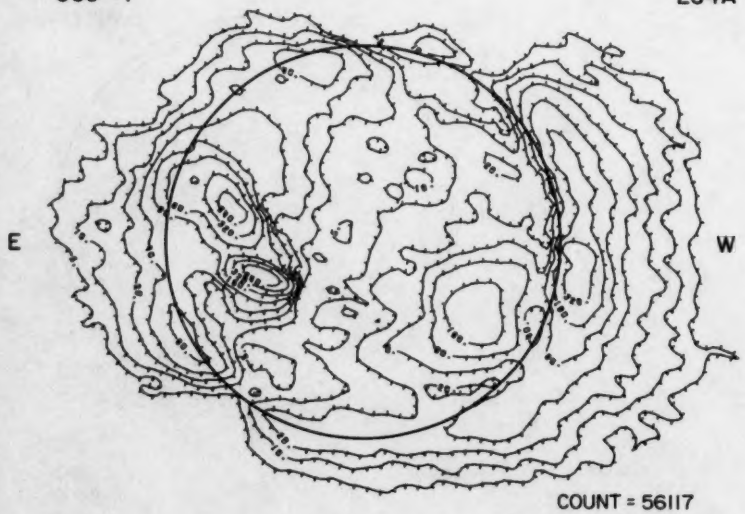
1341-1618UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



1206 UT

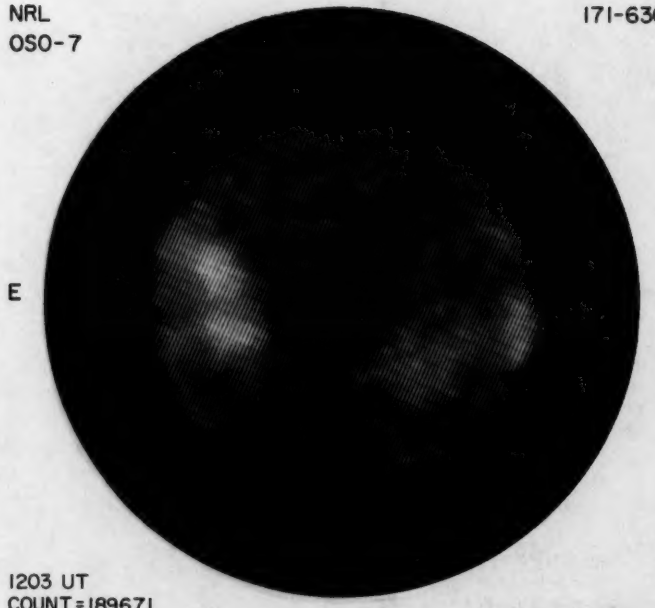
COUNT = 56117
ROLL = 28.7°
P-TH = -6.58

Sp

Np

NRL
OSO-7

171-630A



1203 UT
COUNT = 189671

Sp

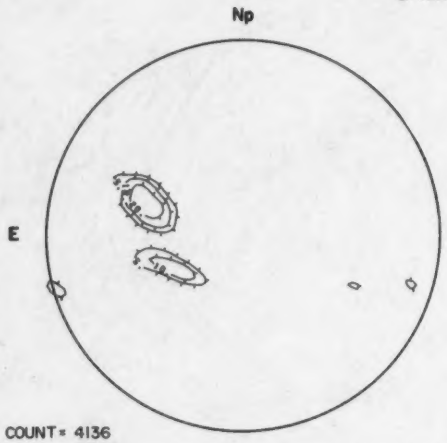
29
Jul 73

JULY 3, 1973 (P=-1.85, B_o=3.12, L_o=306.06)

30 Jul 73

NASA GSFC
OSO-7

X-RAY
8-16A



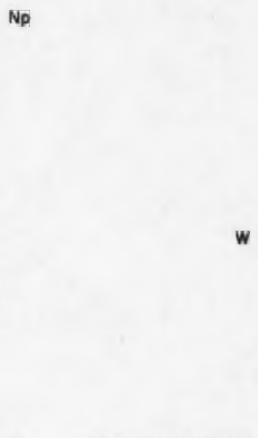
COUNT = 4136
ROLL = 28.5°
P-TH = -6.53

1201 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

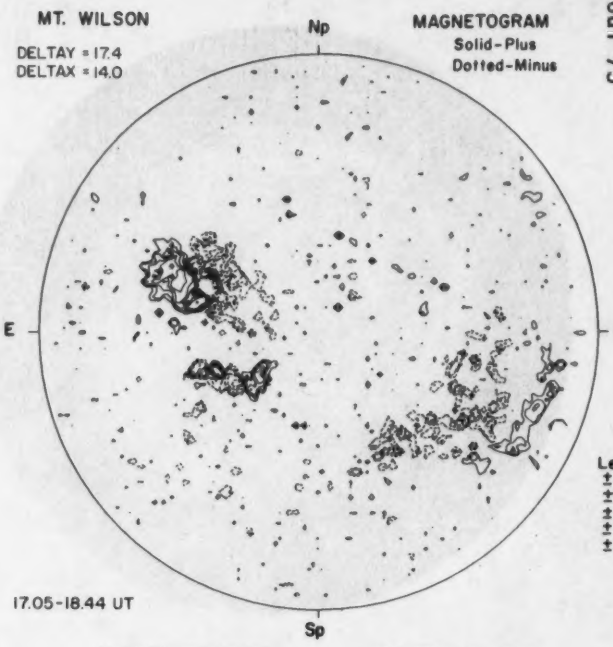


Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

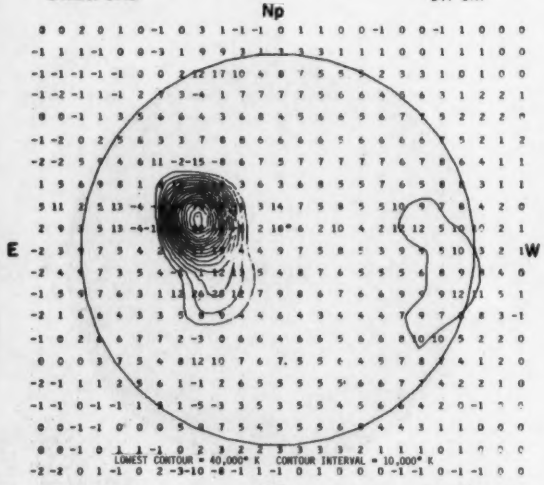


Levels
±5
±10
±20
±40
±80

17.05-18.44 UT

STANFORD

9.1 cm



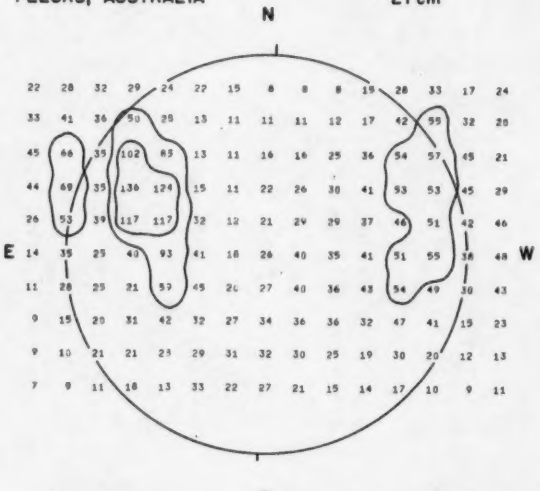
LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

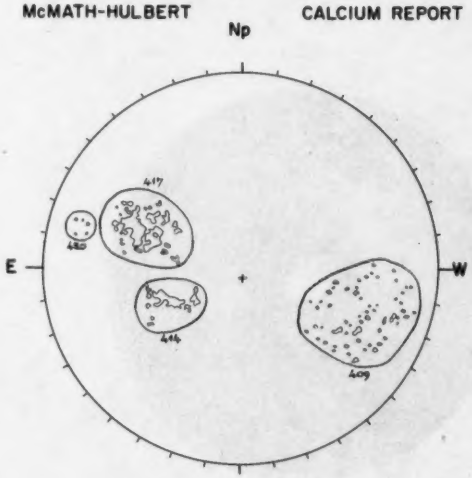


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



FAIR	M
14-2000	-3.0
17-4300	-3.5

1300 UT

Sp
20-21 UT Brightness Unit 5,000° K

S
02-03 UT Resolution 3 Minutes of Arc Brightness Unit 1,700° K

Sp
1300 UT

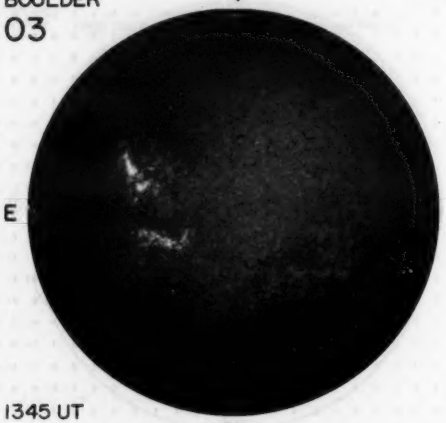
BOULDER
03

Np

Hα

E

W



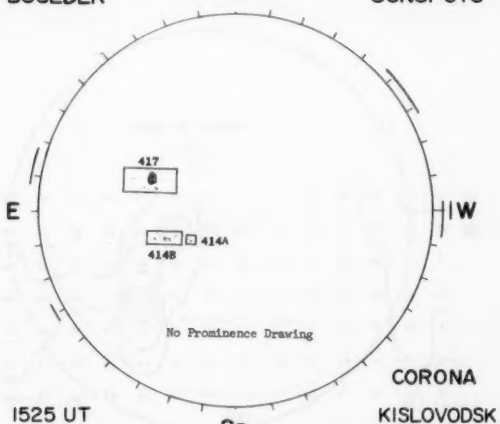
1345 UT

Sp

BOULDER

Np

SUNSPOTS



CORONA

1525 UT

Sp

KISLOVODSK

NRL
OSO-7

WHITE-LIGHT
CORONA

E

W

1335-1649 UT

Sp

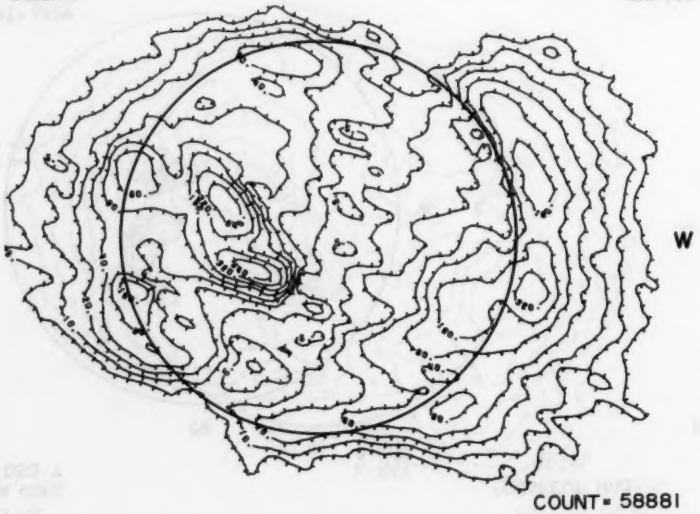
NASA GSFC
OSO-7

Np

FE XV
284 A

E

W



COUNT = 58881
ROLL = 28.5°
P-TH = -6.53

1201 UT

Sp

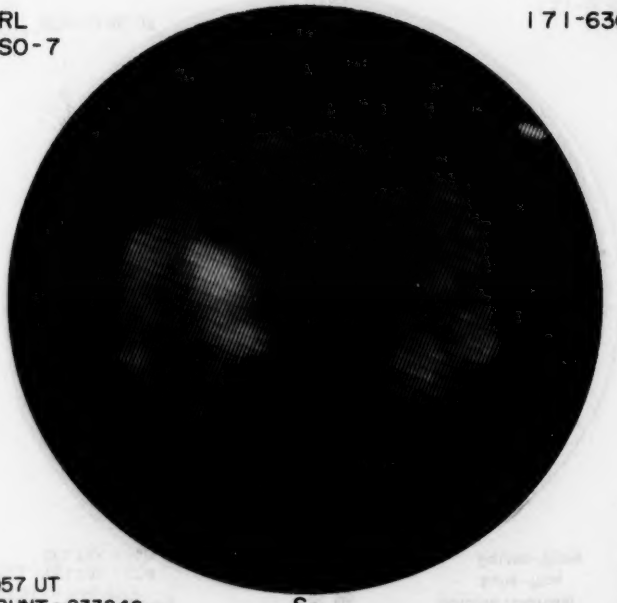
Np

NRL
OSO-7

171-630A

E

W



1057 UT
COUNT = 233246

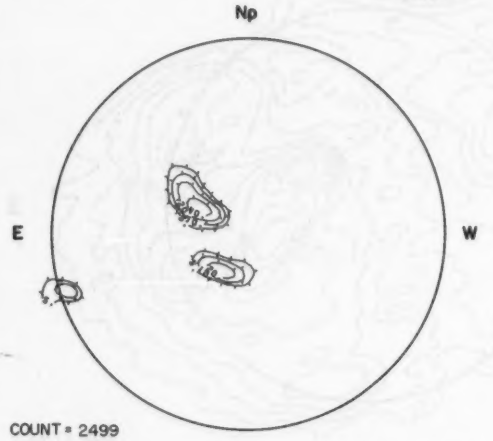
Sp

31
Jul 73

JULY 4, 1973 (P=-1.39, B_o=3.23, L_o=292.82)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2499
ROLL = 28.3°
P-TH = -6.48

1130 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

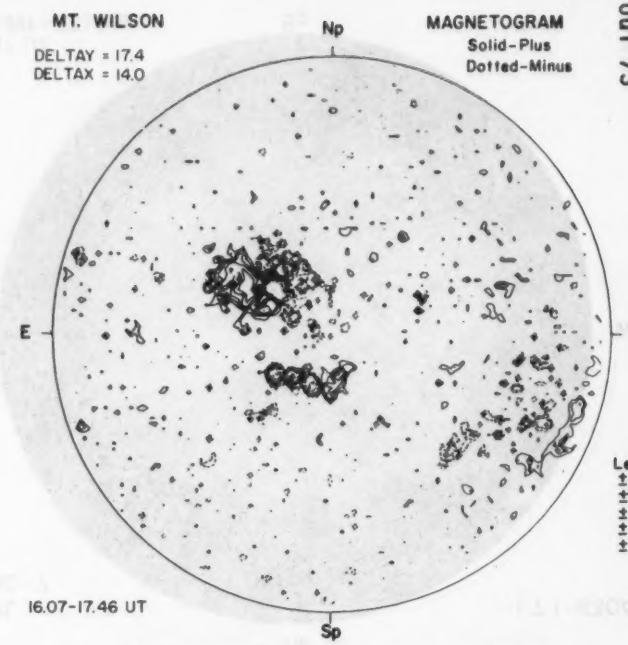
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

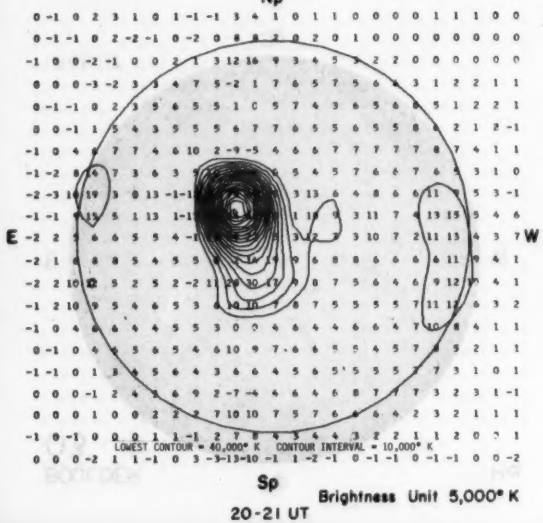


Levels
±5
±10
±20
±40
±80

16.07-17.46 UT

STANFORD

9.1 cm

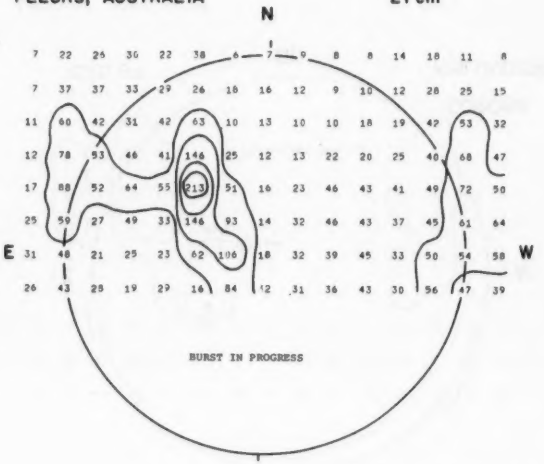


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

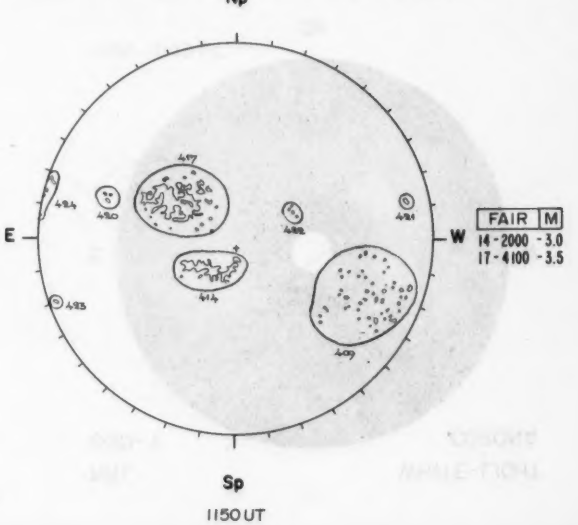


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1150 UT

20-21 UT

Brightness Unit 5,000° K

02-03 UT

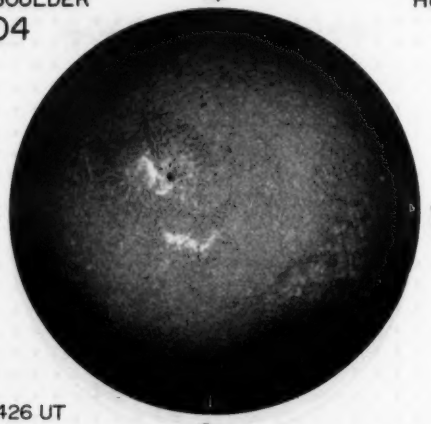
Brightness Unit 1,700° K

1150 UT

BOULDER
04

Np

Hα



E

W

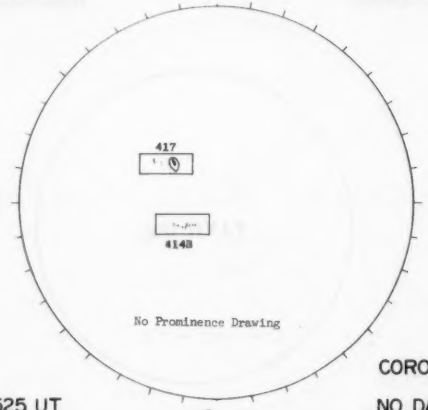
Sp

1426 UT

BOULDER

Np

SUNSPOTS



E

W

Sp

1525 UT

CORONA

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

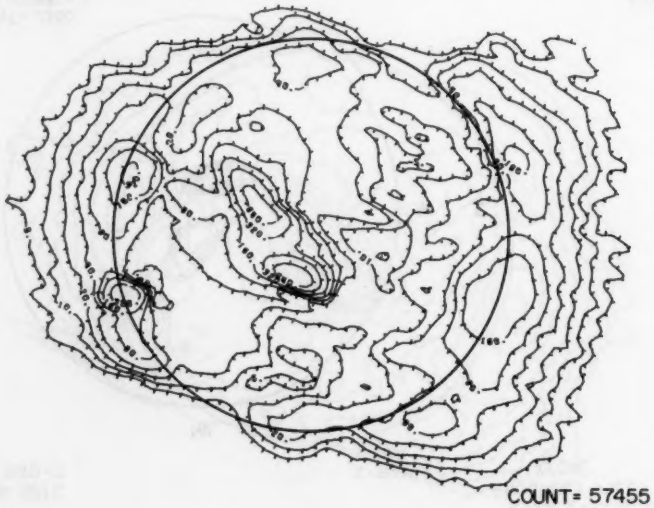
W

Sp

1229-1437 UT

NASA GSFC
OSO-7

Np



E

W

Sp

1130 UT

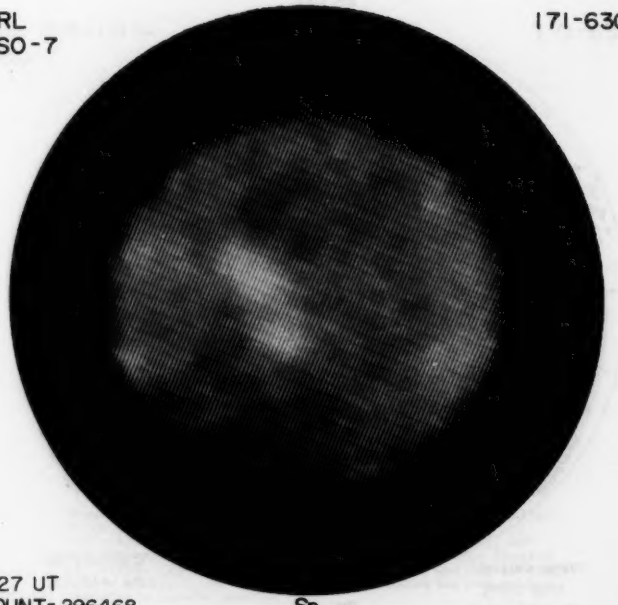
FE XV
284A

COUNT= 57455
ROLL = 28.3°
P-TH = -6.48

NRL
OSO-7

Np

171-630A



E

W

Sp

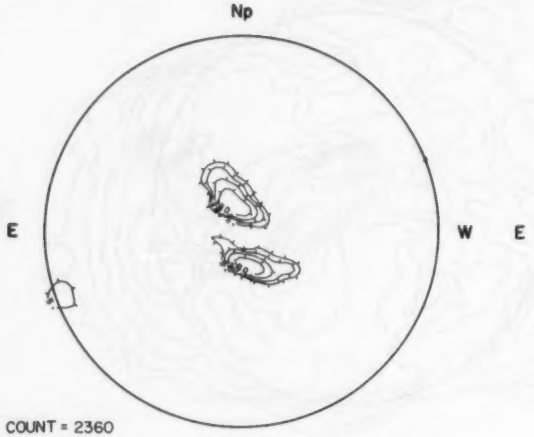
1127 UT
COUNT= 296468

33
Jul 73

JULY 5, 1973 (P=-0.94, B_o=3.33, L_o=279.59)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2360
ROLL = 28.1°
P-TH = -6.43

1024 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

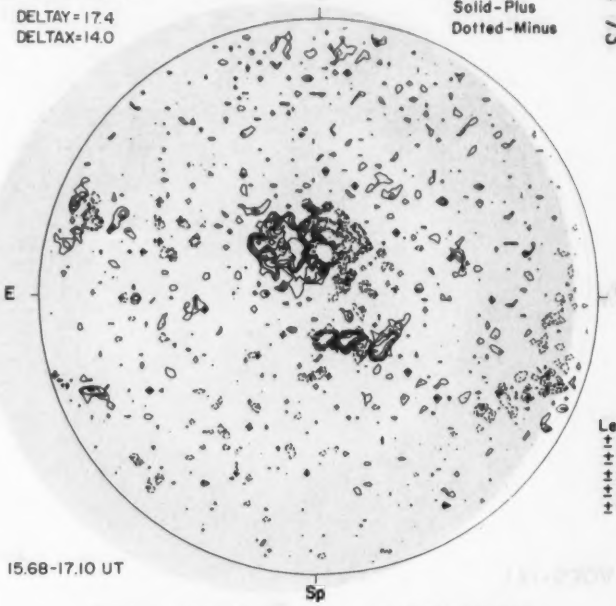
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

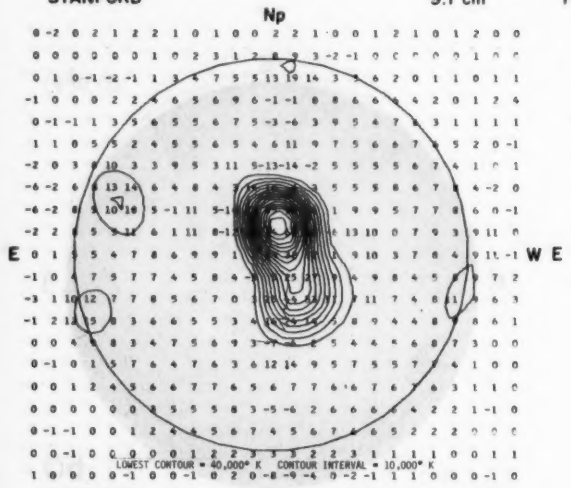


Levels
±5
±10
±20
±40
±80

15.68-17.10 UT

STANFORD

9.1 cm



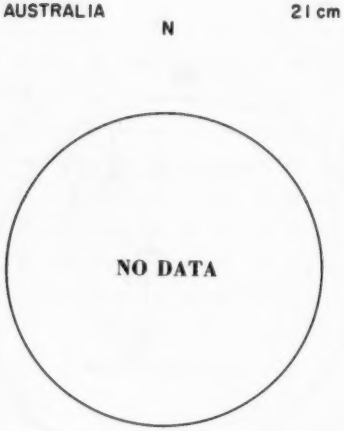
LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

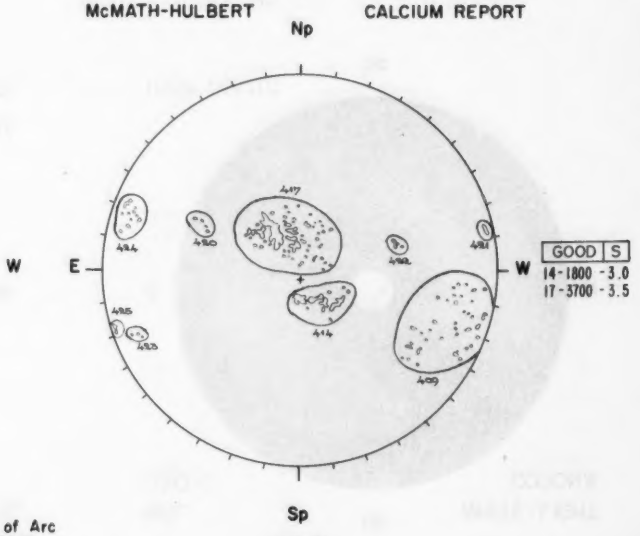


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1132 UT

20-21 UT

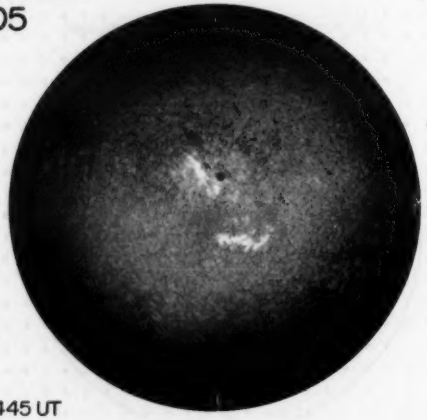
02-03 UT Brightness Unit 1,700° K

1132 UT

BOULDER 05

Np

Hα

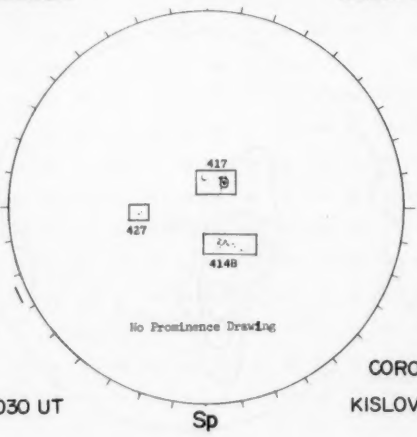


1445 UT

BOULDER

Np

SUNSPOTS



CORONA

KISLOVODSK

2030 UT

NRL OSO-7

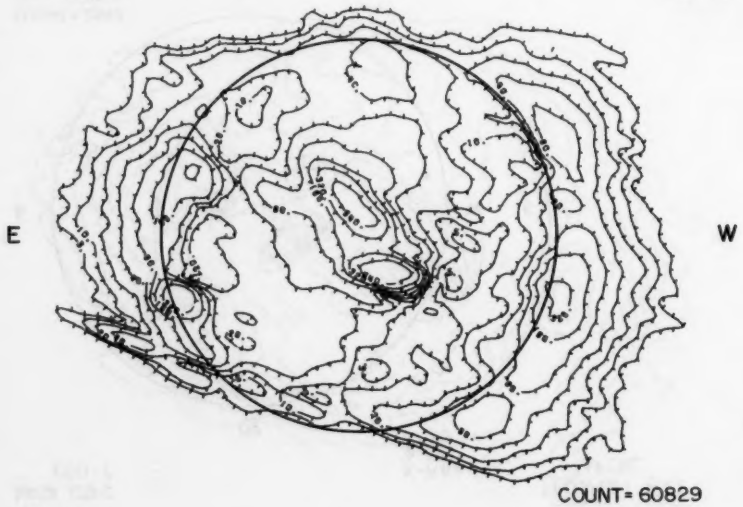
WHITE-LIGHT CORONA

1156-1436 UT

NASA GSFC OSO-7

Np

FE XV 284A



COUNT= 60829
ROLL = 28.1°
P-TH = -6.43

1024 UT

NRL OSO-7

Np

171-630A

During the early part of June the NRL instrument began to suffer a gradual disintegration of the XUV filter which previously limited the wavelength to the band 170 - 630 Å. The band extends now to nearly 1600 Å, and the XUV image is diluted mainly with chromospheric Lyman-α radiation. The contrast is therefore lower and the intensity counts higher. No count is given when a maximum has been reached resulting in computer overflow.

1021 UT

COUNT = 316852

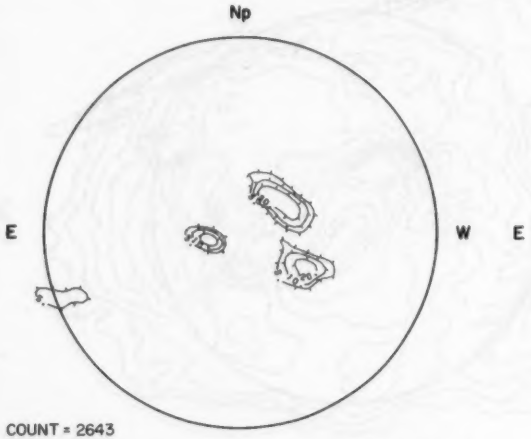
35 Jul 73

JULY 6, 1973 (P=-0.48, B_o=3.44, L_o=266.35)

36
Jul 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2643
ROLL = 27.9°
P-TH = -6.37

1054 UT

Counts per 0.125 sec.

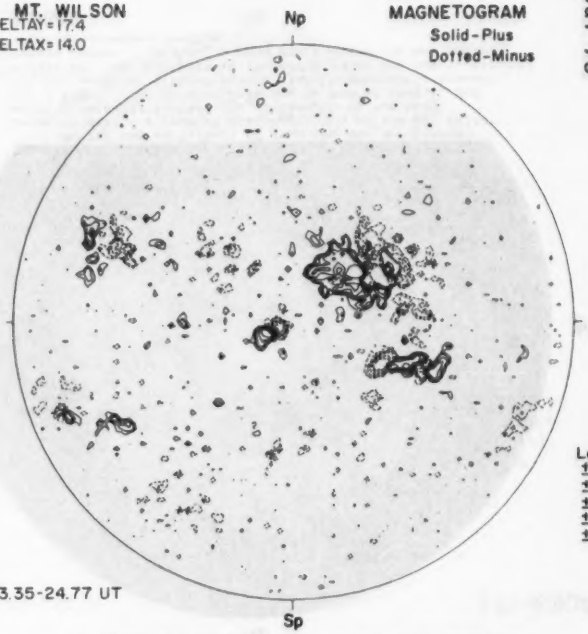
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON
DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

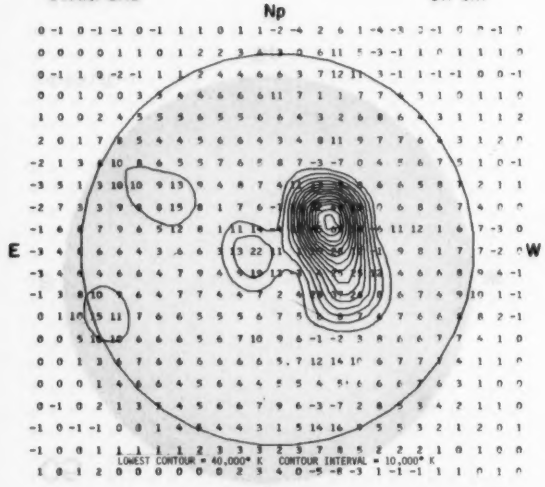


Levels
±5
±10
±20
±40
±80

23.35-24.77 UT

STANFORD

9.1 cm

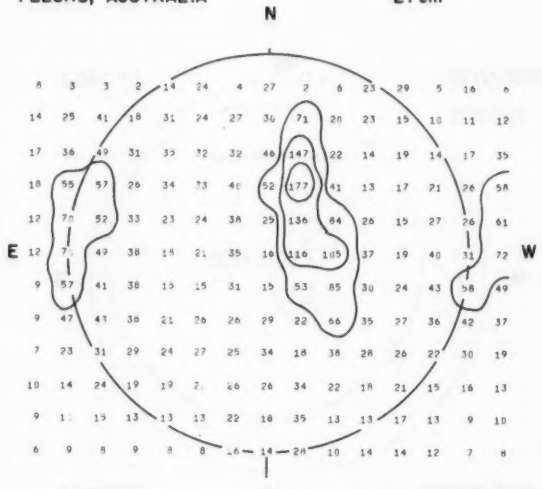


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

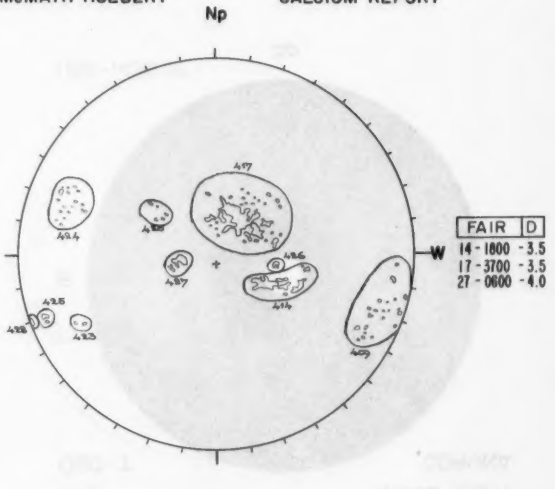


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT



1135 UT

BOULDER

20-21 UT

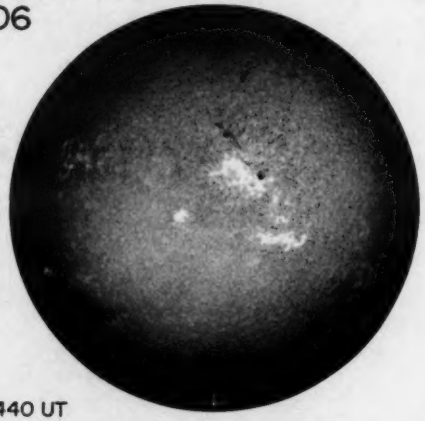
02-03 UT Brightness Unit 1,700° K

1155 UT

BOULDER
06

Np

Hα



E

W

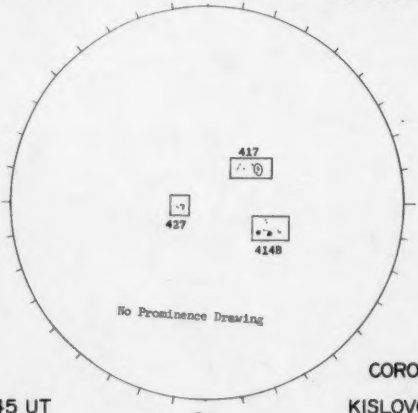
1440 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1645 UT

Sp

CORONA

KISLOVODSK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

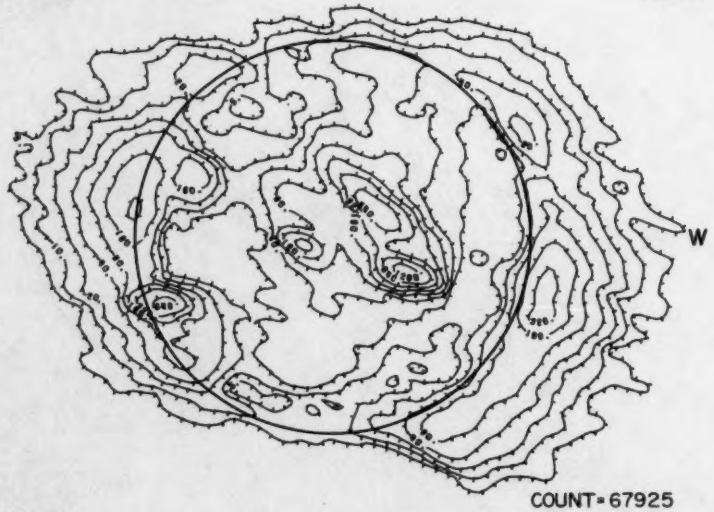
1238-1507 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



E

W

1054 UT

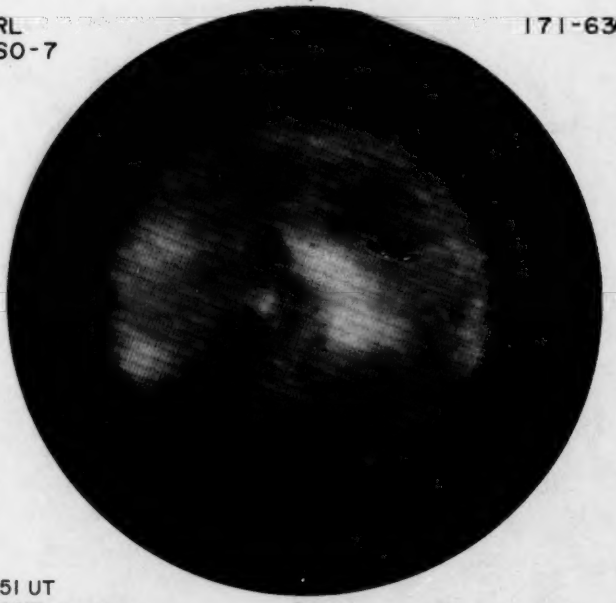
Sp

COUNT=67925
ROLL = 27.9°
P-TH = -6.37

NRL
OSO-7

Np

171-630A



E

W

1051 UT
COUNT=243558

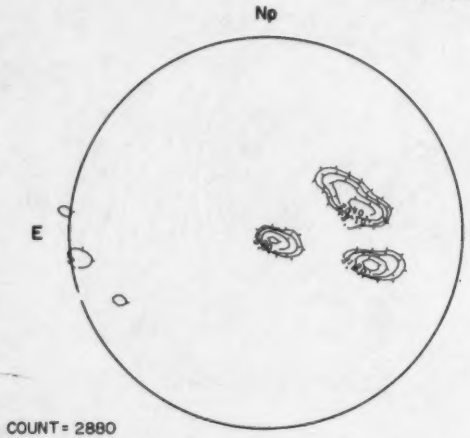
Sp

37
Jul 73

JULY 7, 1973 (P=-0.03, B_o=3.55, L_o=253.12)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2880
ROLL = 27.9°
P-TH = -6.31

1122 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

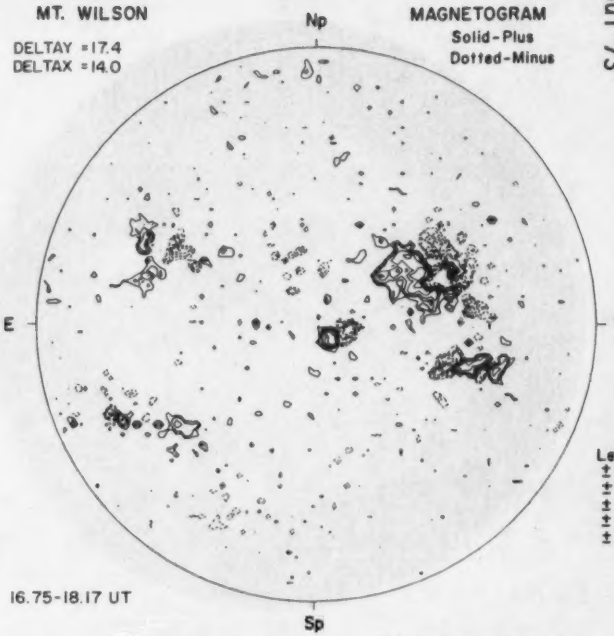
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

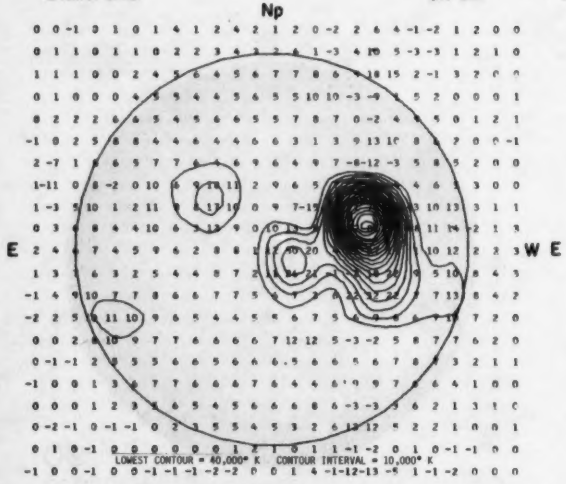


Levels
±5
±10
±20
±40
±80

16.75-18.17 UT

STANFORD

9.1 cm



Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

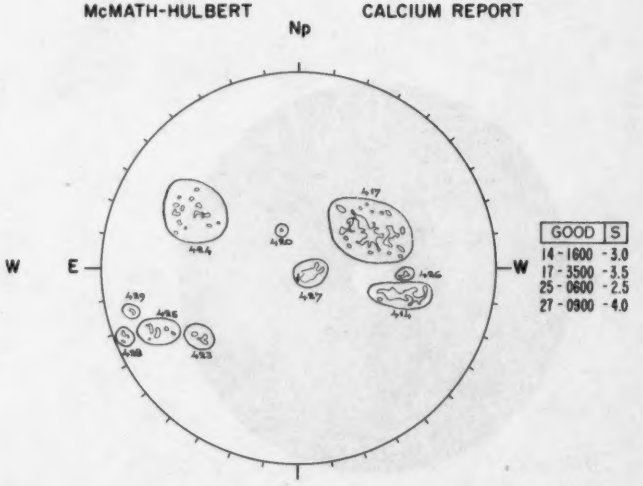
21 cm

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT



1300 UT

BOULDER

Np

Hα

BOULDER

Np

SUNSPOTS

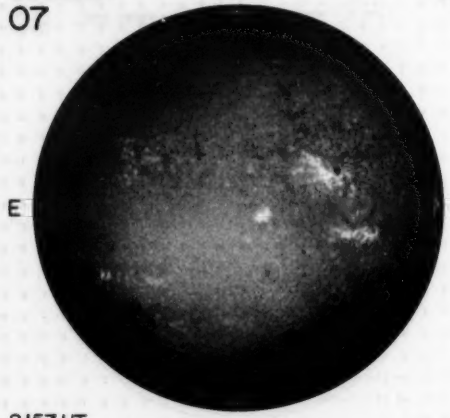
NRL

WHITE-LIGHT

BOULDER
07

Np

Hα



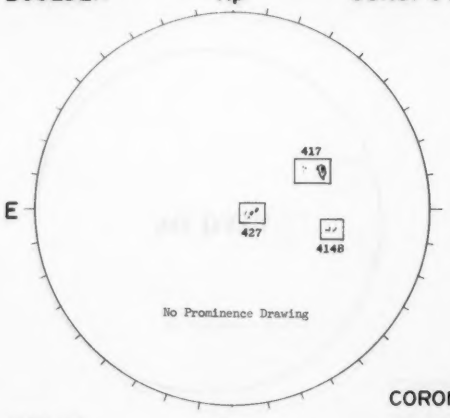
2157 UT

Sp

BOULDER

Np

SUNSPOTS



1500 UT

Sp

CORONA
NO DATA

NRL
OSO-7

WHITE-LIGHT
CORONA

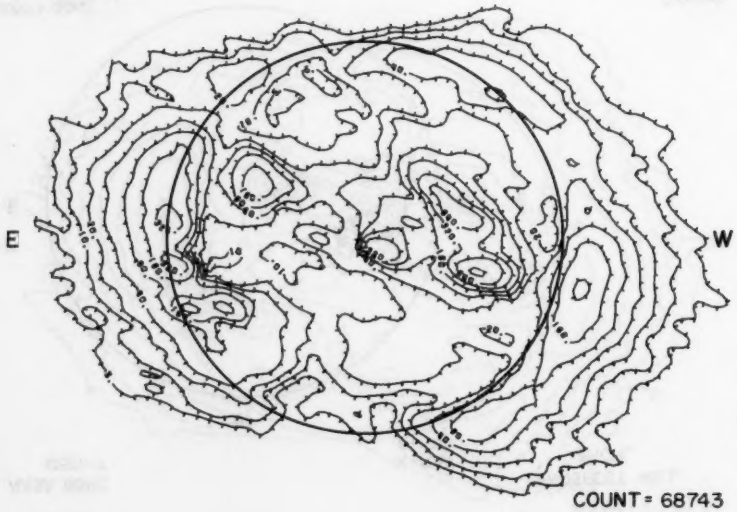
1225-1410 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



COUNT = 68743
ROLL = 27.9°
P-TH = -6.31

1122 UT

Sp

Np

NRL
OSO-7

171-630A

0944 UT
COUNT =

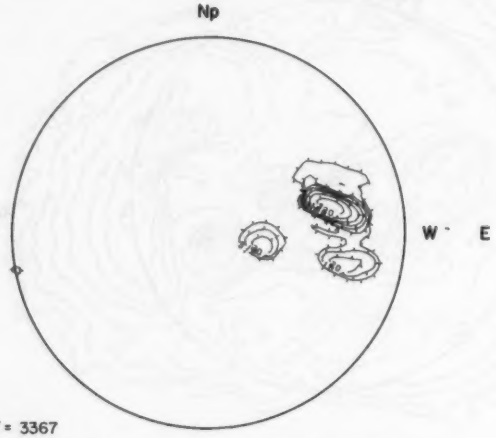
Sp

39
Jul 73

JULY 8, 1973 (P = 0.42, B_o = 3.65, L_o = 239.88)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3367
ROLL = 28.0°
P-TH = -6.25

0838 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

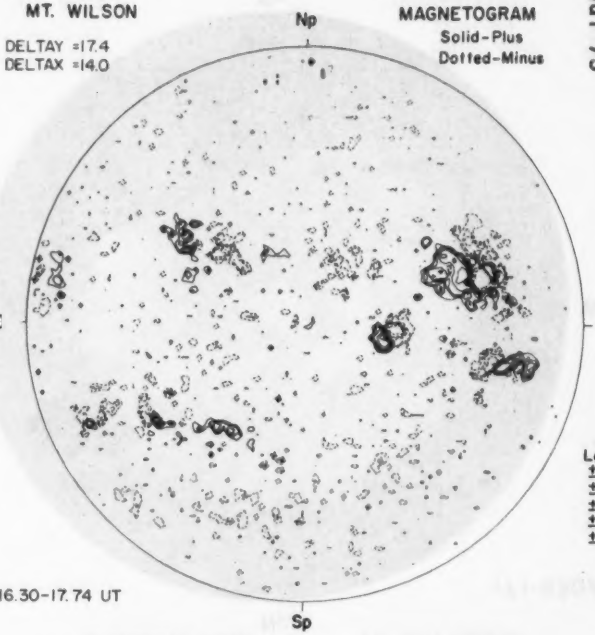
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

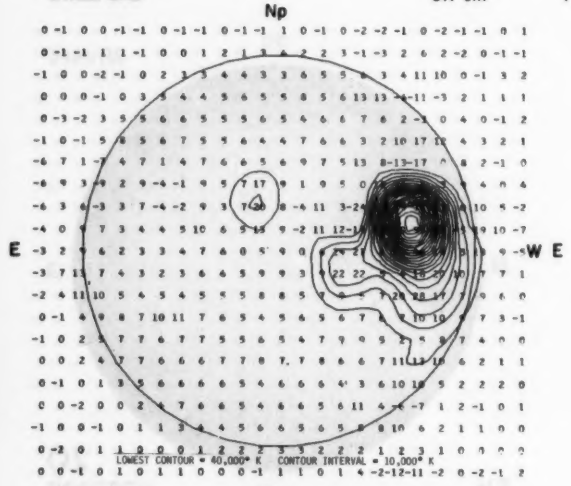
16.30-17.74 UT

McMATH-HULBERT

CALCIUM REPORT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

Brightness Unit 5,000° K

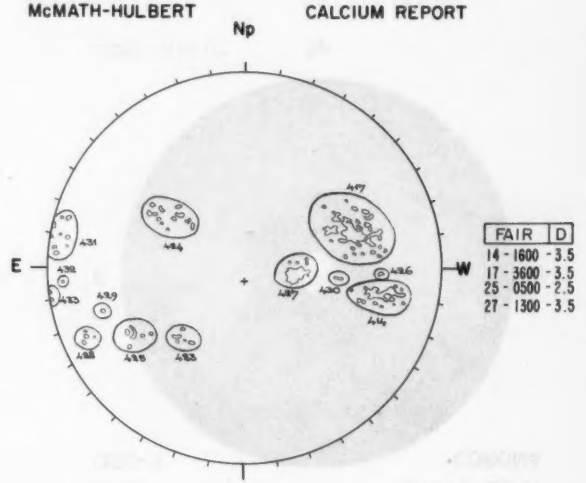
20-21 UT

FLEURS, AUSTRALIA

21 cm

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT



1235 UT

20-21 UT

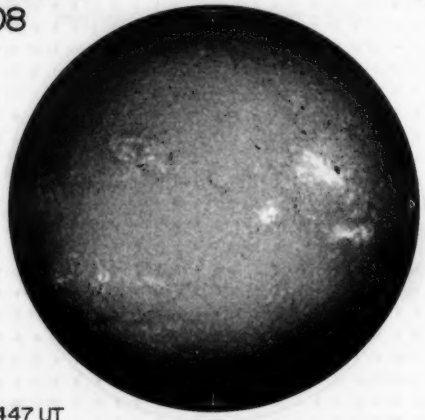
02-03 UT Brightness Unit 1,700° K

1235 UT

BOULDER 08

Np

Hα



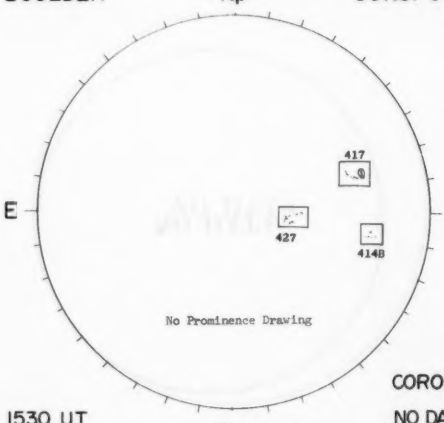
1447 UT

Sp

BOULDER

Np

SUNSPOTS



1530 UT

Sp

CORONA

NO DATA

NRL OSO-7

WHITE-LIGHT CORONA

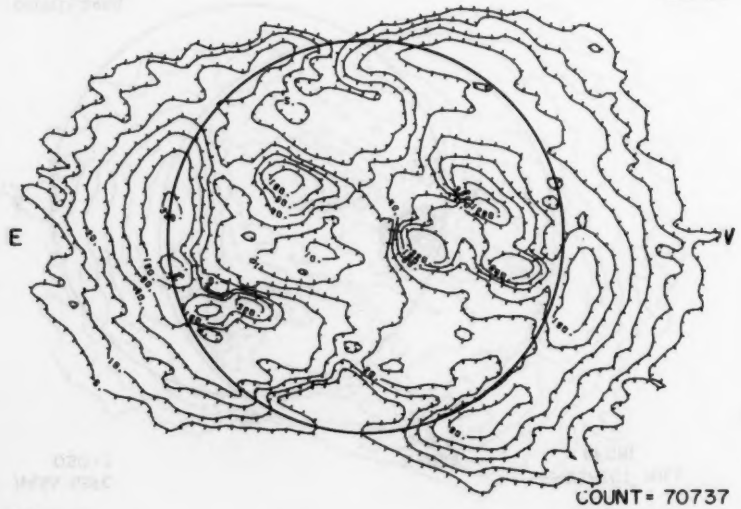
1149-1503 UT

Sp

NASA GSFC OSO-7

Np

FE. XV 284A



0838 UT

COUNT = 70737

ROLL = 28.0°

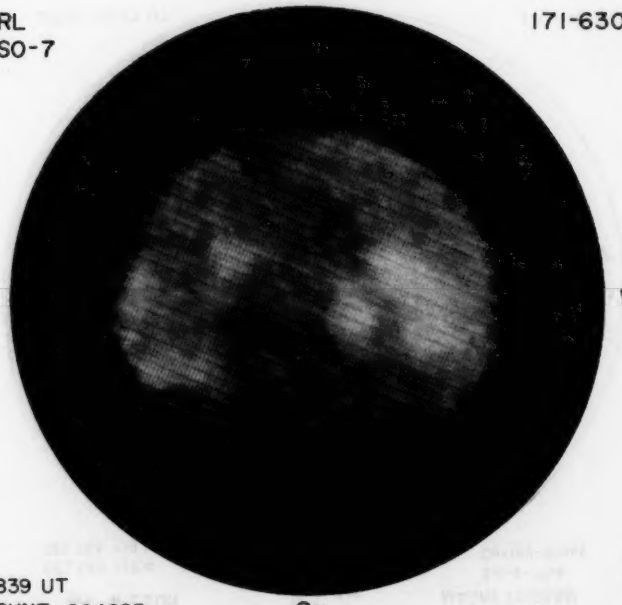
P-TH = -6.25

Sp

Np

NRL OSO-7

171-630A



0839 UT

COUNT = 264603

Sp

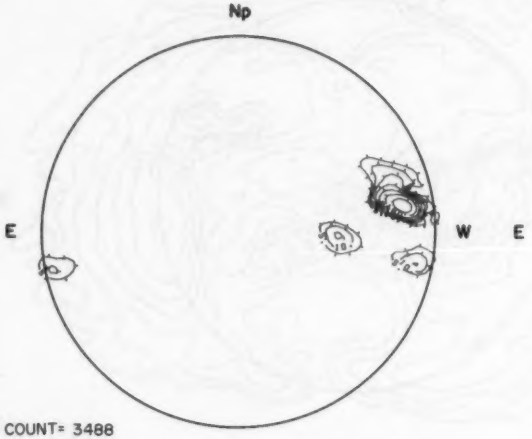
41

Jul 73

JULY 9, 1973 (P=0.88, B_o=3.75, L_o=226.65)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT= 3488
ROLL = 27.9°
P-TH = -6.19

0912 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

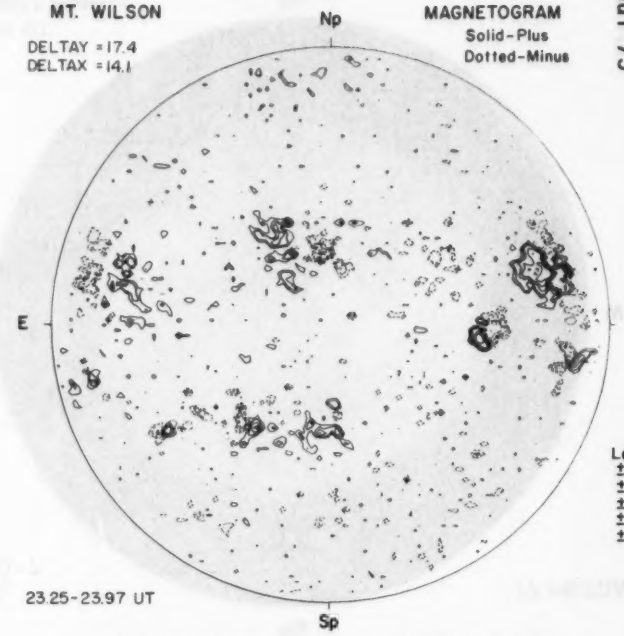
8.6 mm

Contours in intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus

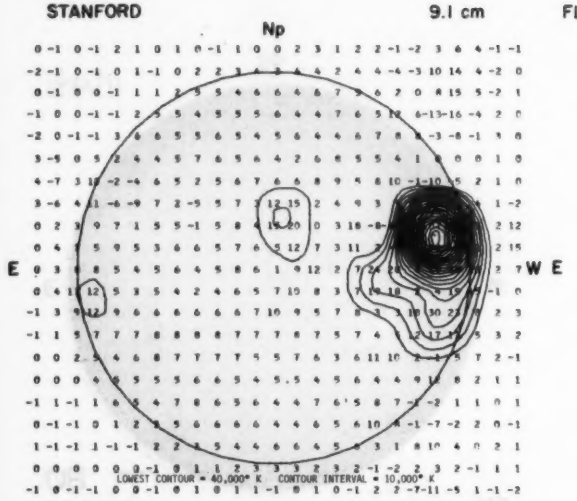


Levels
±5
±10
±20
±40
±80

23.25-23.97 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K. CONTOUR INTERVAL = 10,000° K

Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

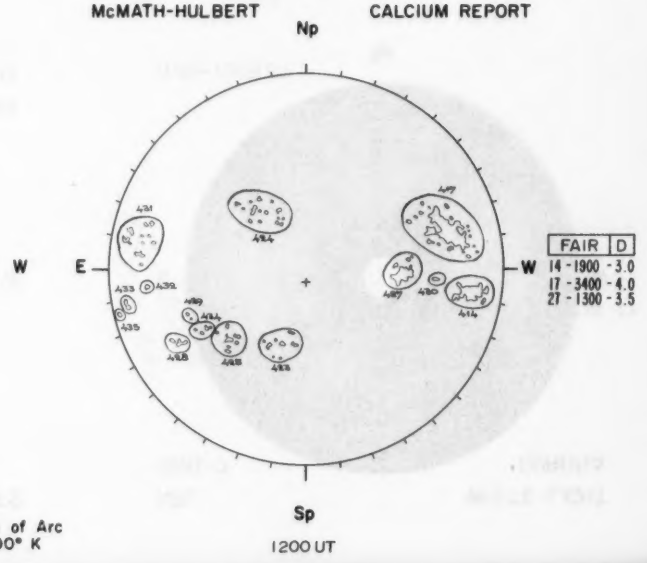
21 cm

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT



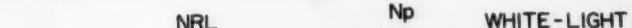
FAIR	D
14 - 1900	- 3.0
17 - 3400	- 4.0
27 - 1300	- 3.5

1200 UT

BOULDER

Hα

NRL



WHITE-LIGHT

BOULDER
09

Np

Hα

E

W

Sp

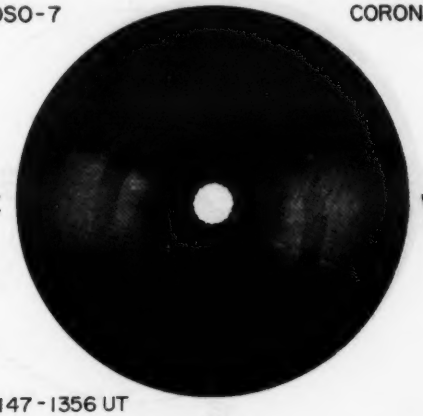
1420 UT

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E

W

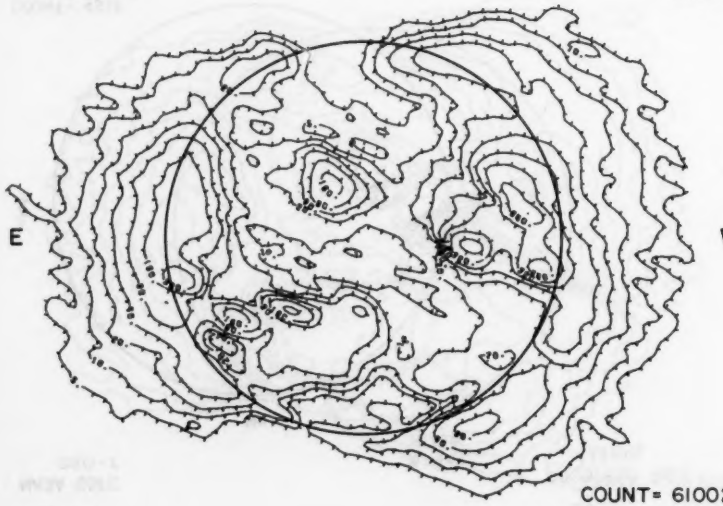
Sp

1147-1356 UT

NASA GSFC
OSO-7

Np

FE XV
284A



E

W

Sp

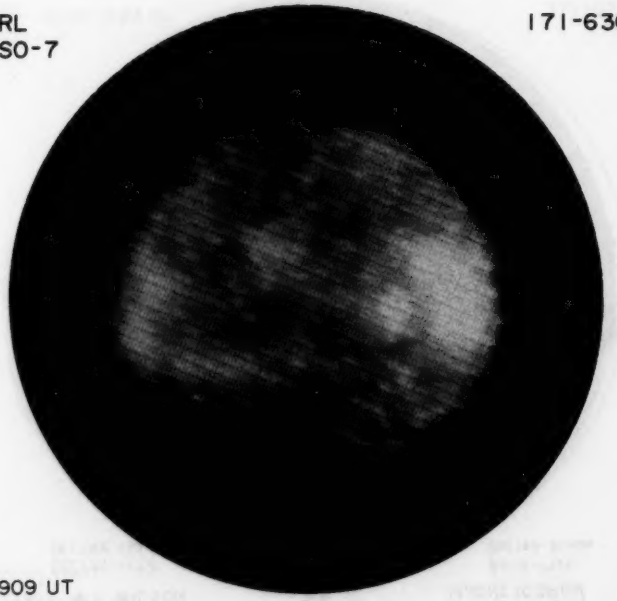
0912 UT

COUNT= 61002
ROLL = 27.9°
P-TH = -6.19

Np

NRL
OSO-7

171-630A



E

W

Sp

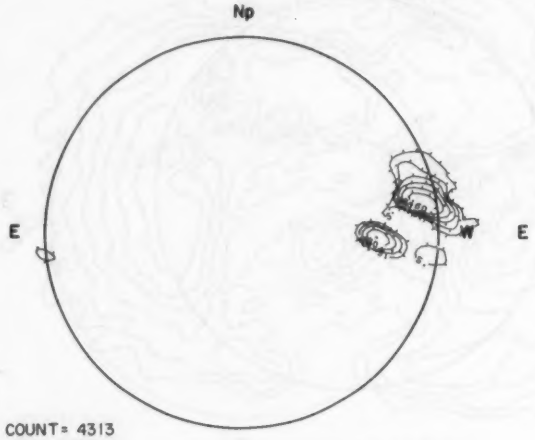
0909 UT
COUNT=279697

43
Jul 73

JULY 10, 1973 (P = 1.33, B_o = 3.86, L_o = 213.41)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 4313
ROLL = 28.2°
P-TH = -6.13

0649 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

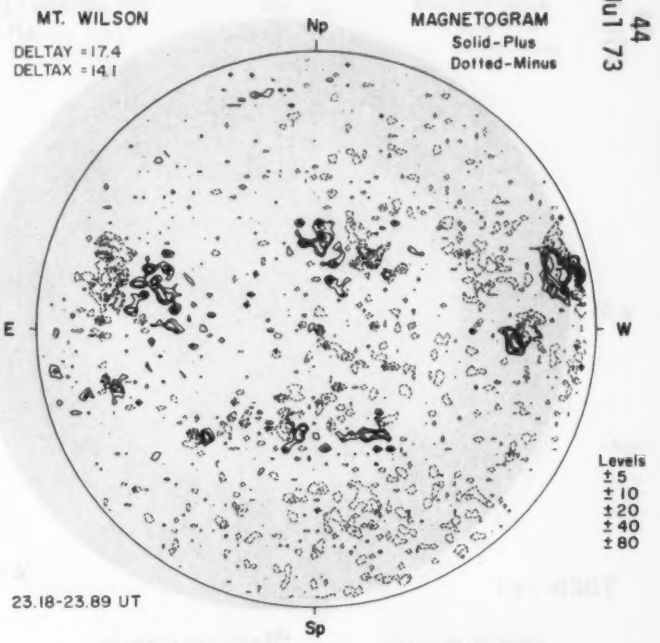
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.1

MAGNETOGRAM
Solid - Plus
Dotted - Minus

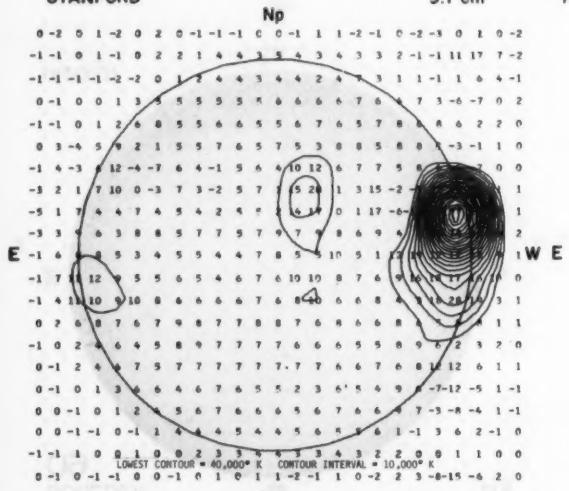


Levels
±5
±10
±20
±40
±80

23.18-23.89 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

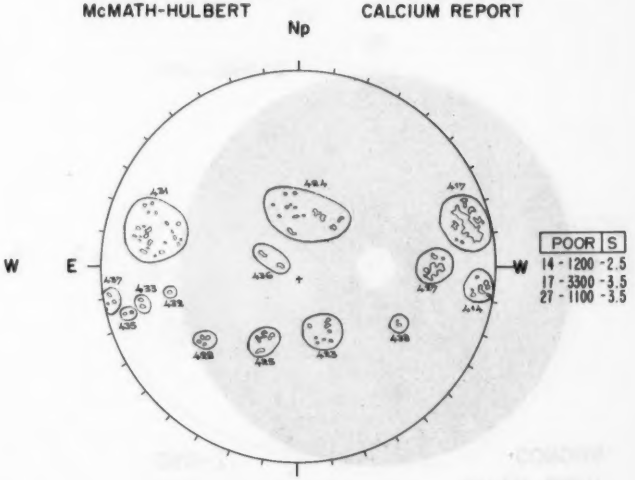
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



POOR	S
14 - 1200	-2.5
17 - 3300	-3.5
27 - 1100	-3.5

1330 UT

BOULDER

Hα

BOULDER

SUNSPOTS

NRL

WHITE-LIGHT

20-21 UT

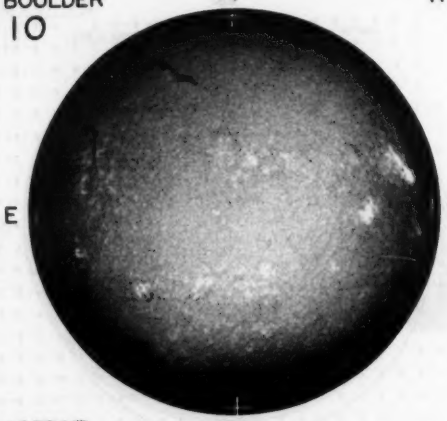
02-03 UT Brightness Unit 1,700° K

1330 UT

BOULDER
10

Np

Hα



E

W

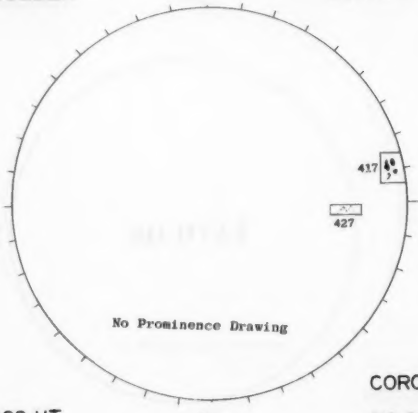
1408 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1420 UT

Sp

CORONA

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

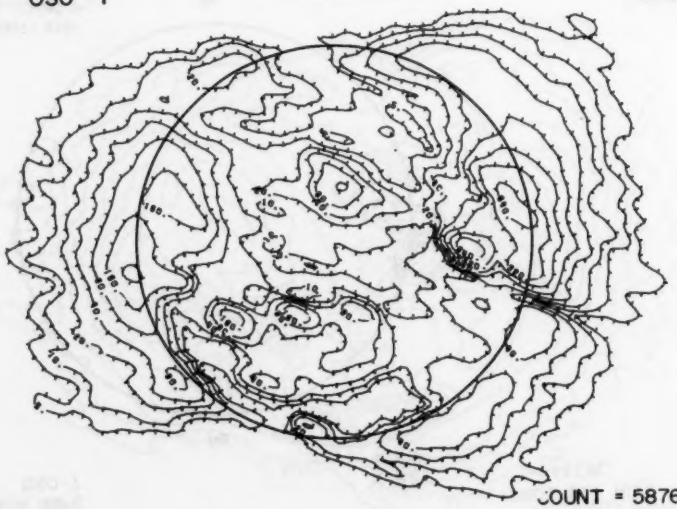
1113-1423 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284 A



E

W

COUNT = 58769
ROLL = 28.2°
P-TH = -6.13

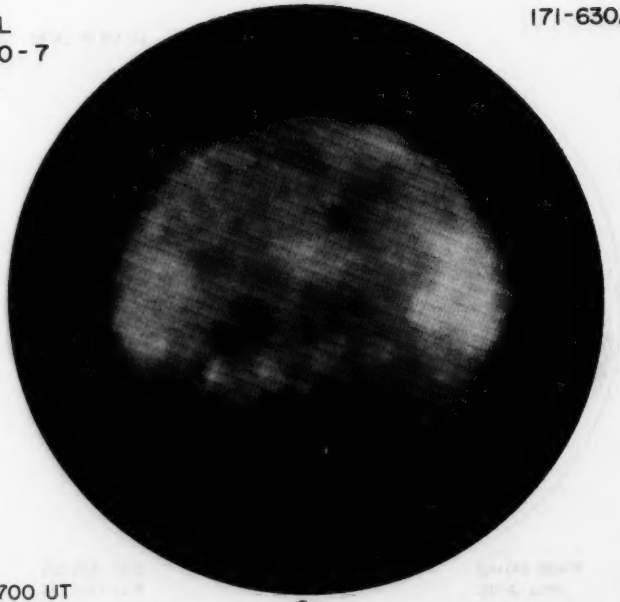
0649 UT

Sp

NRL
OSO-7

Np

171-630A



E

W

0700 UT
COUNT =

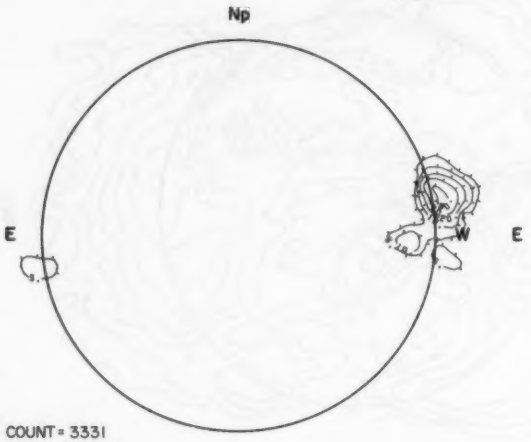
Sp

45
Jul 73

JULY 11, 1973 (P = 1.78, B_o = 3.96, L_o = 200.18)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3331
ROLL = 29.2°
P-TH = -6.06

1005 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

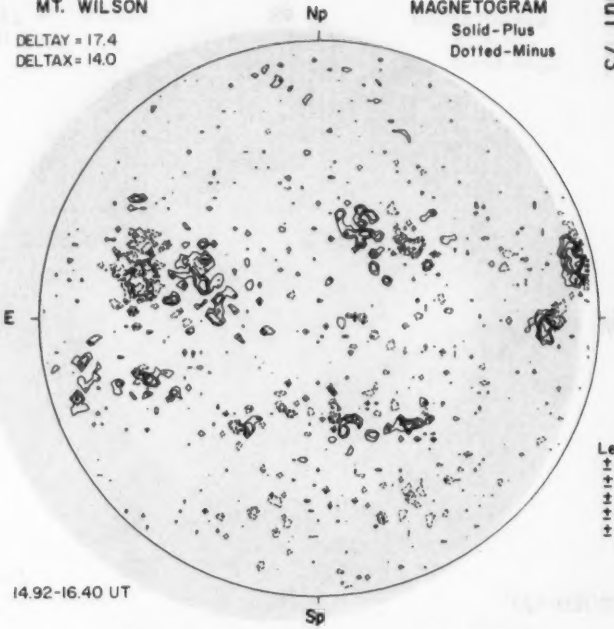
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

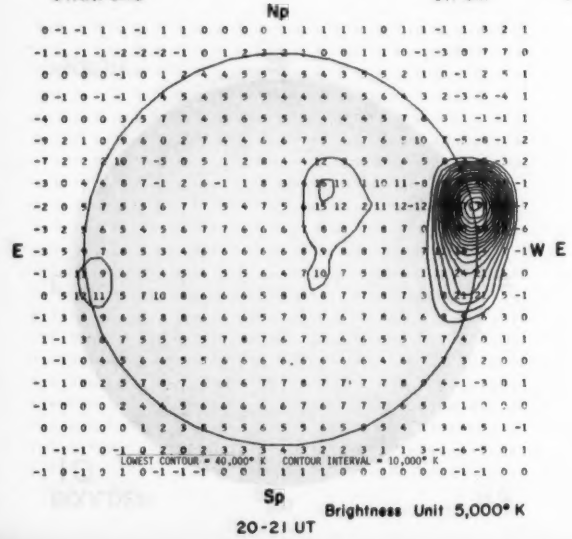


Levels
±5
±10
±20
±40
±80

14.92-16.40 UT

STANFORD

9.1 cm

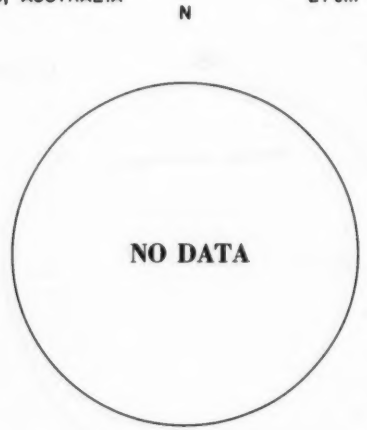


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

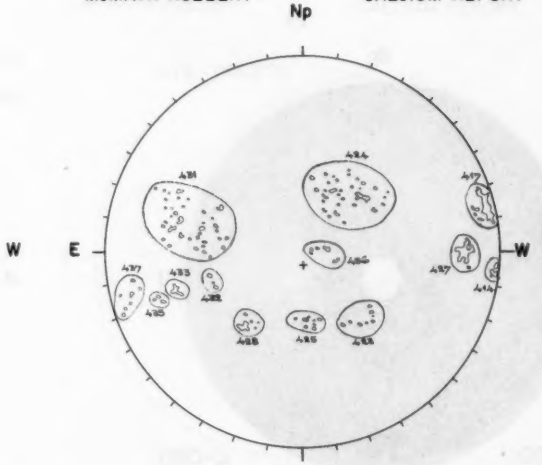
21 cm



Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT



1145 UT

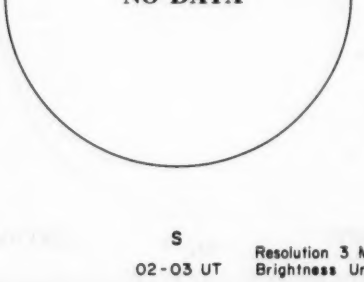
CALCIUM REPORT

FAIR	D
17 - 2800	-3.0
27 - 1100	-3.5
33 - 0500	-2.5

BOULDER

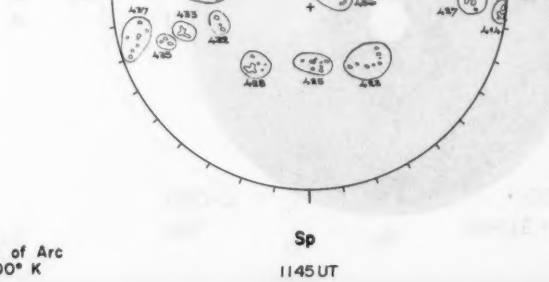
Hα

BOULDER



SUNSPOTS

NRL

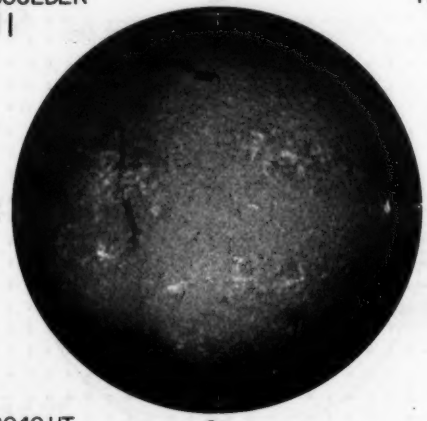


WHITE-LIGHT

BOULDER
11

Np

Hα



E

W

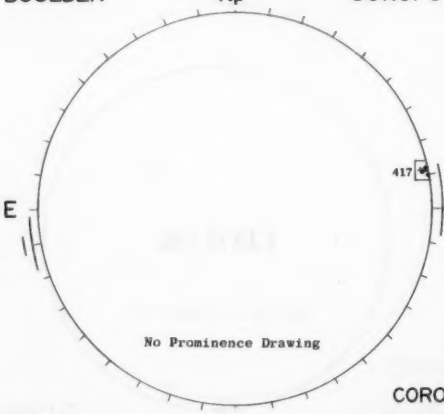
2040 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1510 UT

Sp

CORONA

SAC PEAK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

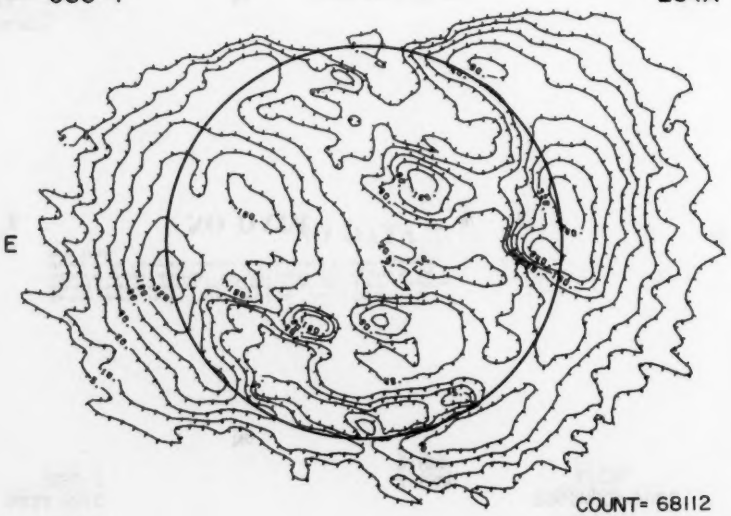
1142-1248 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



E

1005 UT

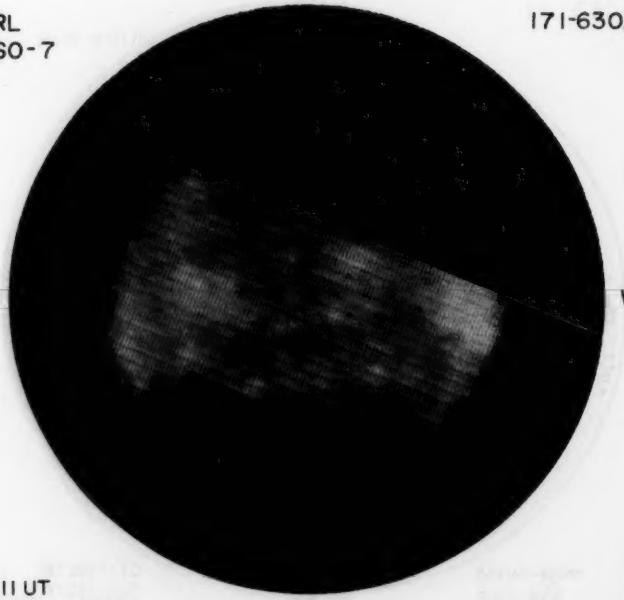
Sp

COUNT= 68112
ROLL = 29.2°
P-TH = -6.06

NRL
OSO-7

Np

171-630A



E

W

1611 UT
COUNT = 239574

Sp

47
Jul 73

JULY 12, 1973 (P=2.23, B_o=4.06, L_o=186.94)

NASA GSFC
OSO-7

X-RAY
8-16A

PROSPECT HILL
AFCRL

8.6 mm

Np

Np

The tape recorder on OSO-7 failed in mid-May. Some of EUV and X-ray maps are incomplete because the period of direct contact with a tracking station is of short duration. The total counts given may also be low because of the incomplete coverage or high because of added background noise levels.

E **NO DATA** W E W

MT. WILSON

DELTAY = 17.2
DELTAX = 14.0

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E W

Levels
±5
±10
±20
±40
±80

16.46-18.01 UT

Sp

COUNT =
ROLL =
P-TH =

Sp

Counts per 0.125 sec.

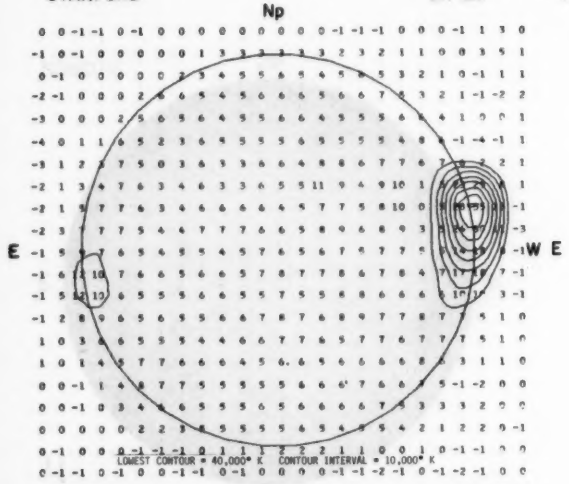
Sp

Contours in Intervals of 200° K

STANFORD

9.1 cm

Np



E W E

LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

Sp

Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

N

NO DATA

W E

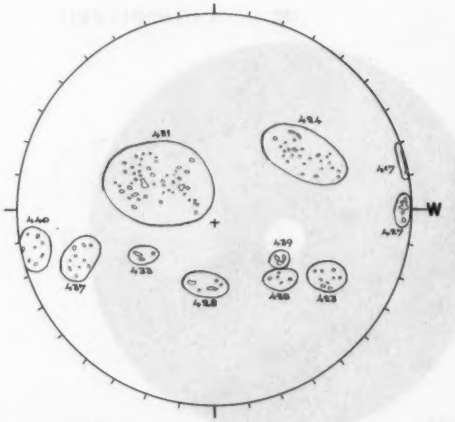
S

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

Np



W E W

Sp

2145 UT

CALCIUM REPORT

GOOD	M
27 - 1100	- 3.5
31 - 1400	- 2.5
33 - 0300	- 2.5
39 - 0300	- 2.5

BOULDER

Np

Hα

BOULDER

Np

SUNSPOTS

NRL

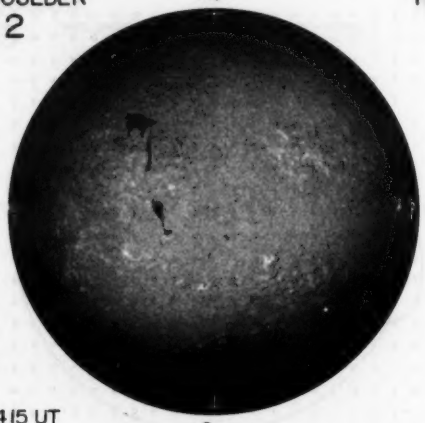
Np

WHITE-LIGHT

BOULDER
12

Np

Hα



E W

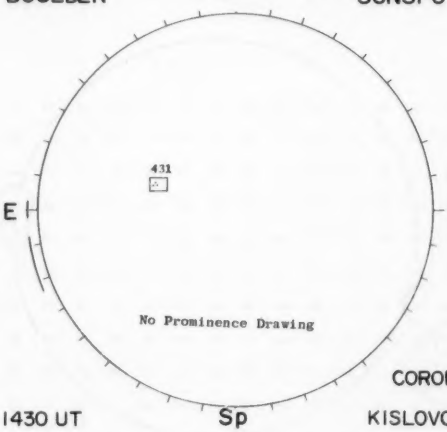
Sp

1415 UT

BOULDER

Np

SUNSPOTS



E W

Sp

1430 UT

CORONA

KISLOVODSK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

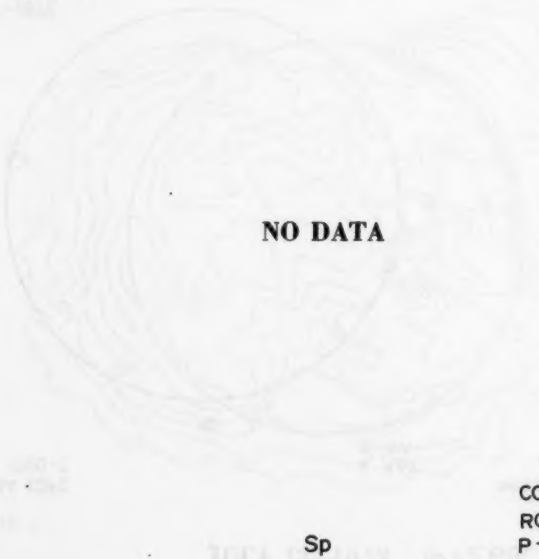
E W

Sp

1034-1459 UT

NASA GSFC
OSO-7

Np



E W

NO DATA

Sp

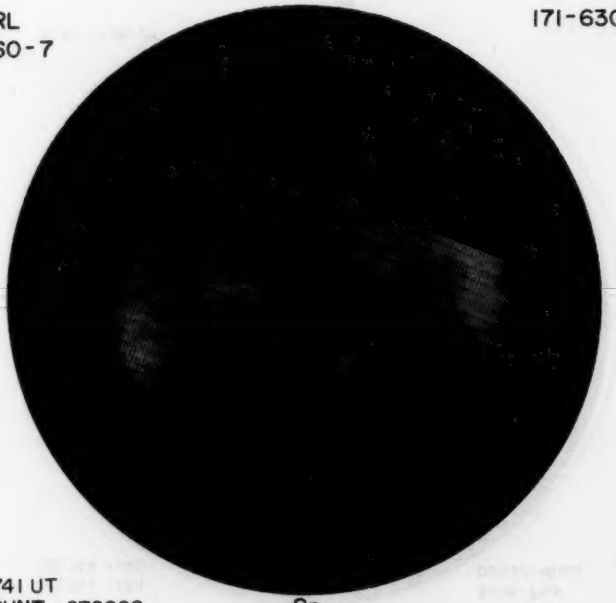
FE XV
284A

COUNT =
ROLL =
P-TH =

NRL
OSO-7

Np

171-630A



E W

Sp

0741 UT
COUNT = 278280

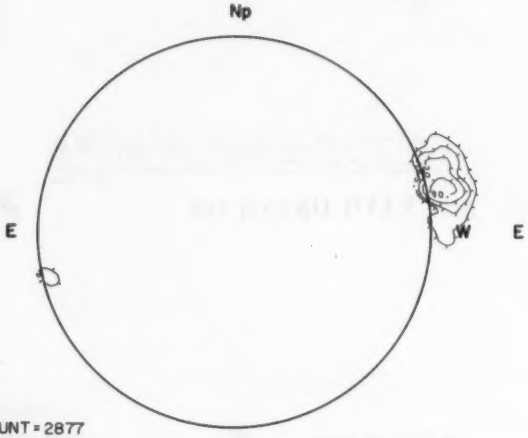
49
Jul 73

JULY 13, 1973 (P=2.68, B_o=4.16, L_o=173.71)

50 Jul 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2877
ROLL = 31.5°
P-TH = -5.93

0818 UT

Counts per 0.125 sec.

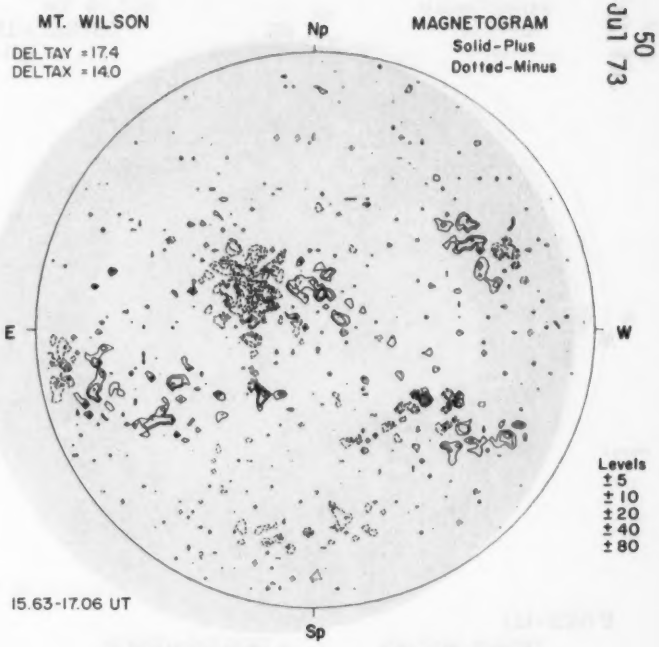
PROSPECT HILL
AFCRL

8.6 mm

Contours in intervals of 200° K

MT. WILSON
DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

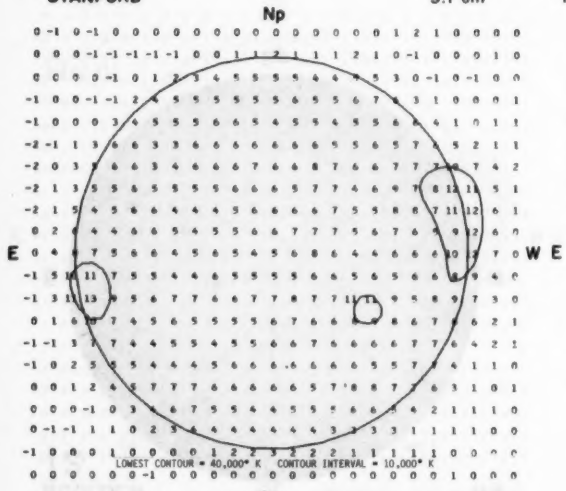


Levels
±5
±10
±20
±40
±80

15.63-17.06 UT

STANFORD

9.1 cm

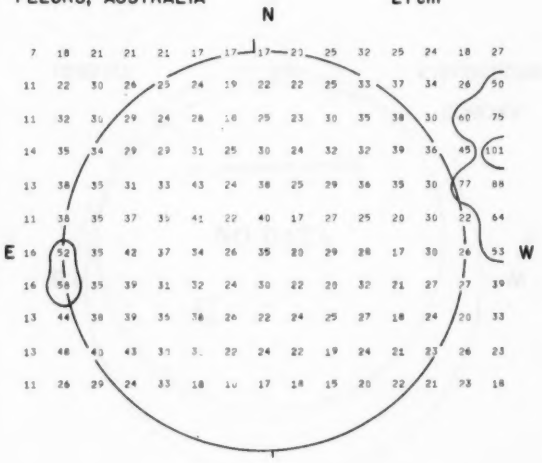


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

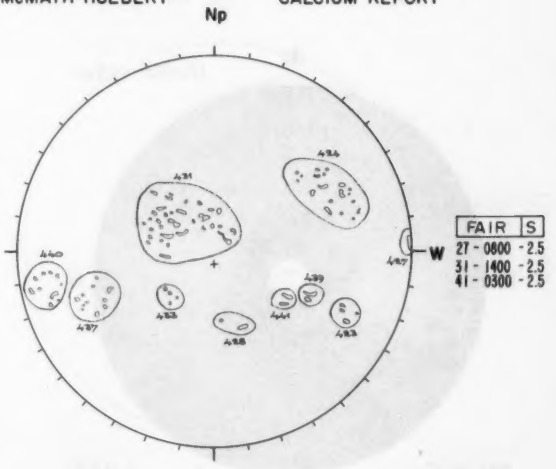


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT

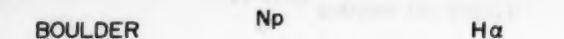


1240 UT

BOULDER

Np

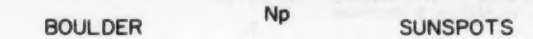
Hα



BOULDER

Np

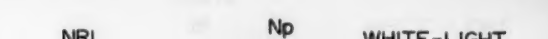
SUNSPOTS



NRL

Np

WHITE-LIGHT



20-21 UT 02-03 UT Brightness Unit 1,700° K 1240 UT

BOULDER
13

Np

Hα

E

NO DATA

W

Sp

BOULDER

Np

SUNSPOTS

E

W

NO DATA

Sp

CORONA
NORIKURA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

1105-1419 UT

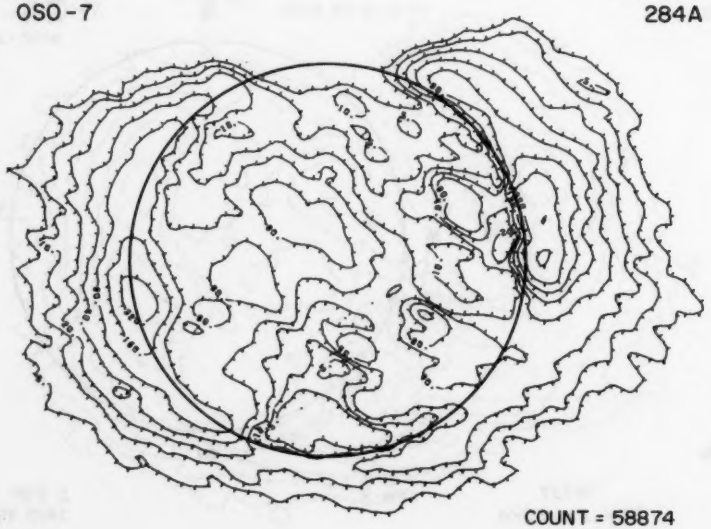
Sp

NASA GSFC
OSO-7

Np

FE XV
284A

E



0818 UT

COUNT = 58874
ROLL = 31.5°
P-TH = -5.93

Sp

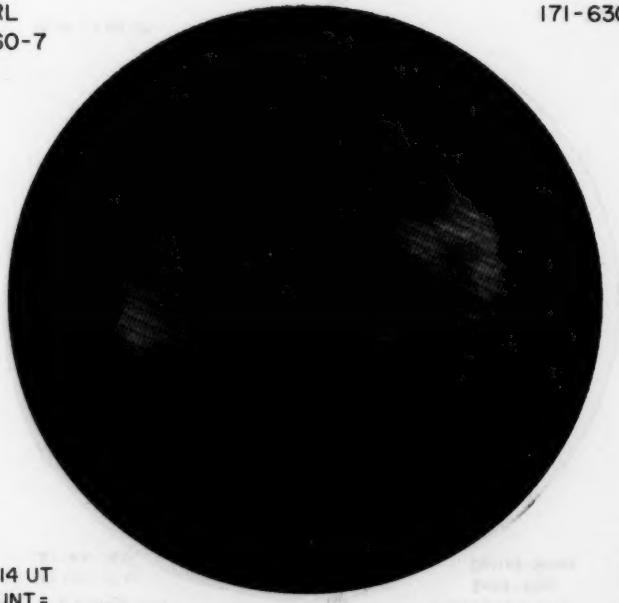
NRL
OSO-7

Np

171-630A

E

W



0814 UT
COUNT =

Sp

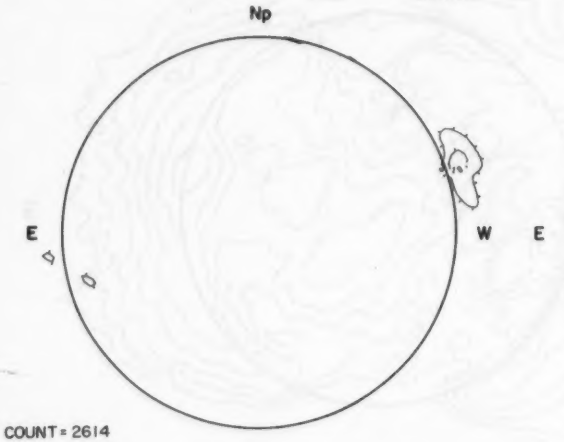
51
Jul 73

JULY 14, 1973 (P=3.12, B_o=4.26, L_o=160.48)

52 Jul 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2614
ROLL = 32.5°
P-TH = -5.86

0824 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

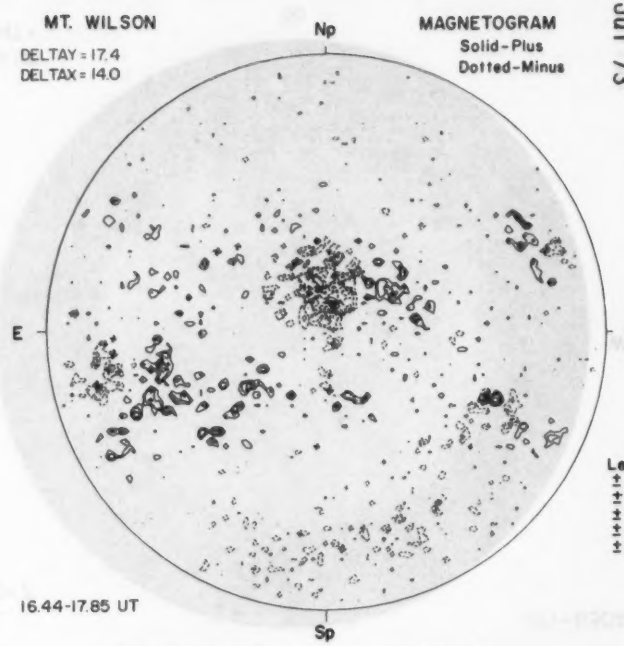
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid - Plus
Dotted - Minus

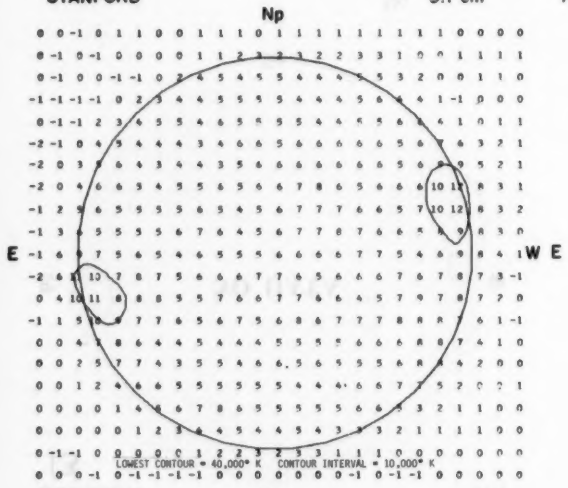


Levels
±5
±10
±20
±40
±80

16.44-17.85 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

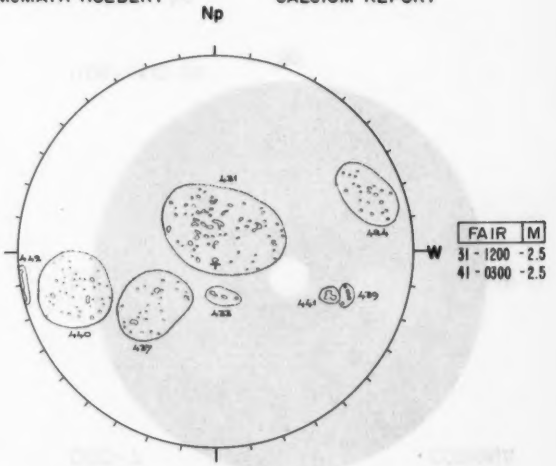
21 cm

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT



1245 UT

BOULDER

Hα

BOULDER

SUNSPOTS

NRL

WHITE-LIGHT

BOULDER
14

Np

Hα

E

NO DATA

W

Sp

BOULDER

Np

SUNSPOTS

E

W

CORONA

NO DATA

Sp

NORIKURA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

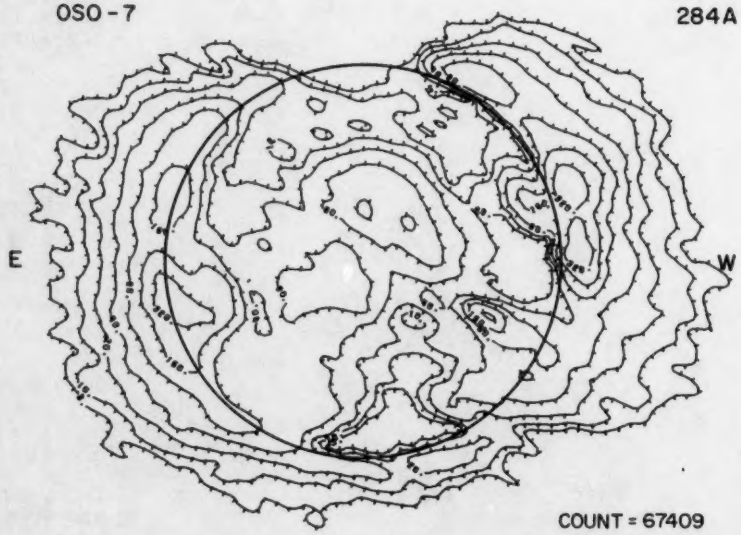
0958-1313 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 67409
ROLL = 32.5°
P-TH = -5.86

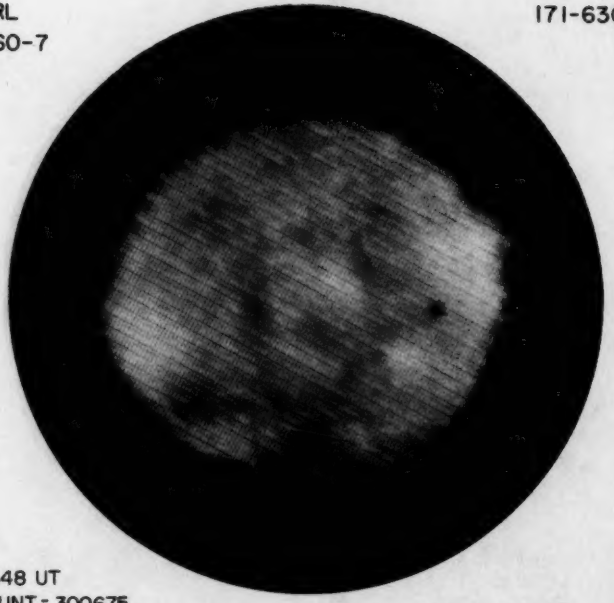
0824 UT

Sp

Np

NRL
OSO-7

171-630A



E

W

0648 UT
COUNT = 300675

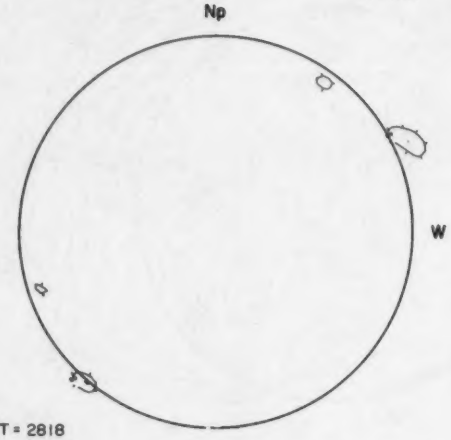
Sp

53
Jul 73

JULY 15, 1973 (P=3.57, B_o=4.35, L_o=147.24)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2818
ROLL = 33.7°
P-TH = -5.79

0718 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

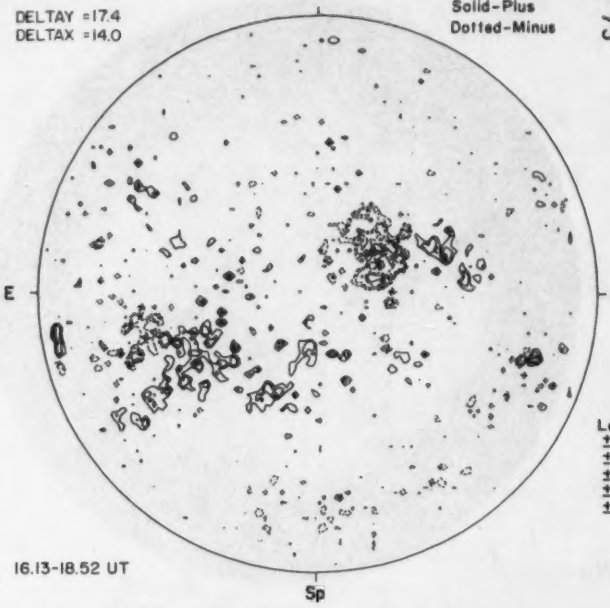
8.6 mm

Contours in intervals of 200° K

MT. WILSON

DELTAY =17.4
DELTAX =14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

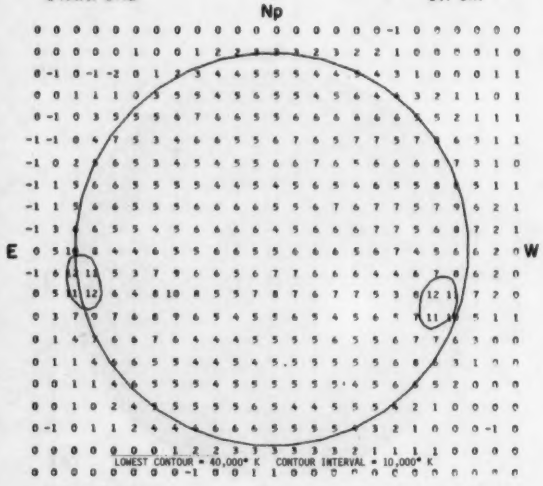


Levels
±5
±10
±20
±40
±80

16.13-18.52 UT

STANFORD

9.1 cm

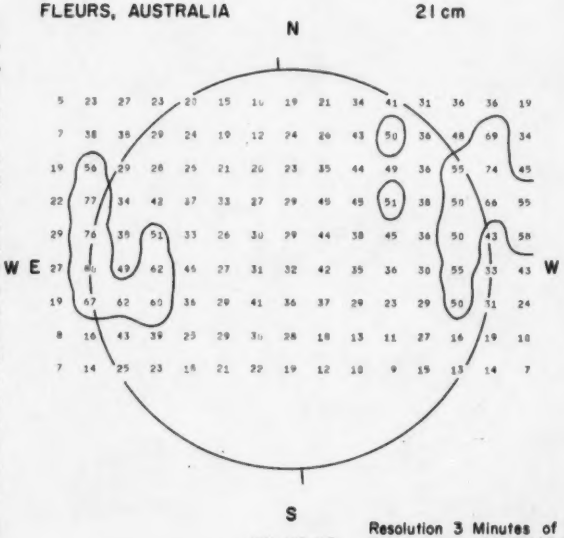


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

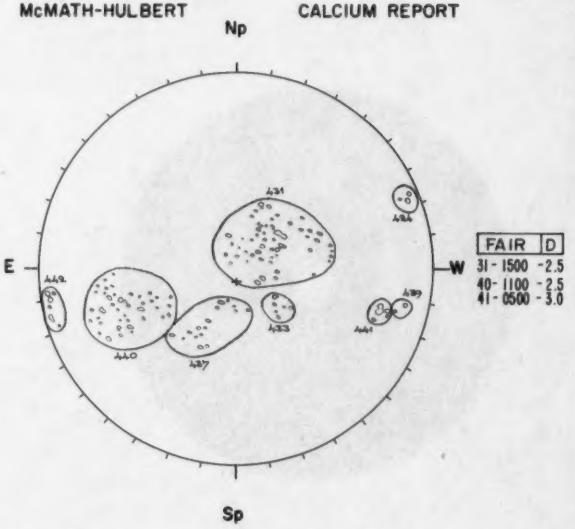


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT



1200 UT

BOULDER

BOULDER

SUNSPOTS

20-21 UT

Brightness Unit 5,000° K

02-03 UT

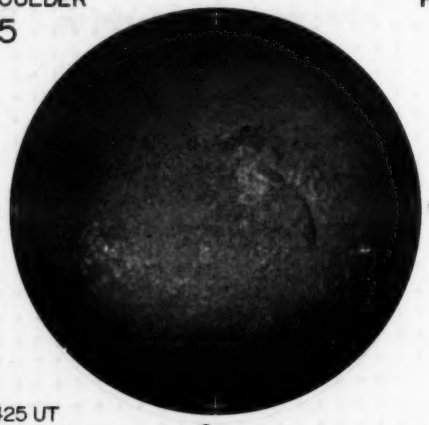
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1200 UT

BOULDER
15

Np

Hα



E

W

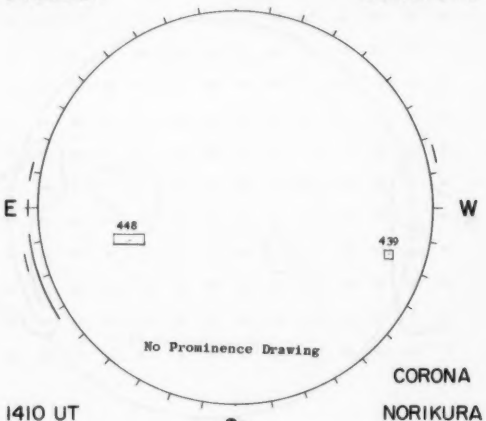
Sp

1425 UT

BOULDER

Np

SUNSPOTS



E

W

CORONA
NORIKURA

1410 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

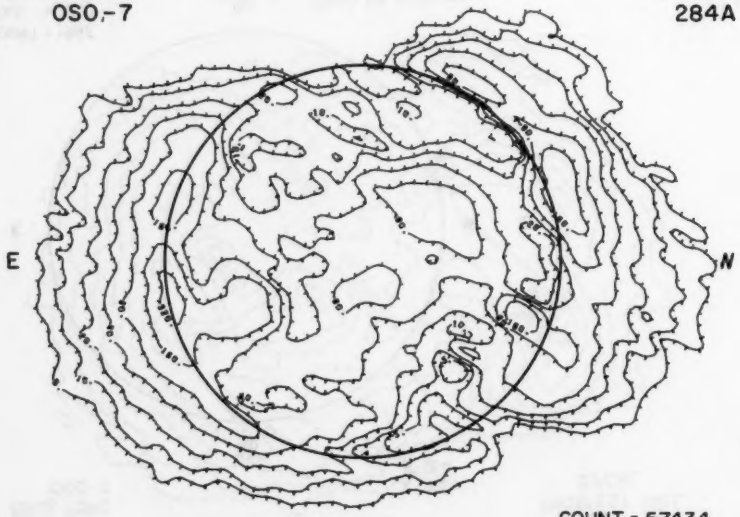
1206 - 1520 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 57434
ROLL = 33.7°
P-TH = -5.79

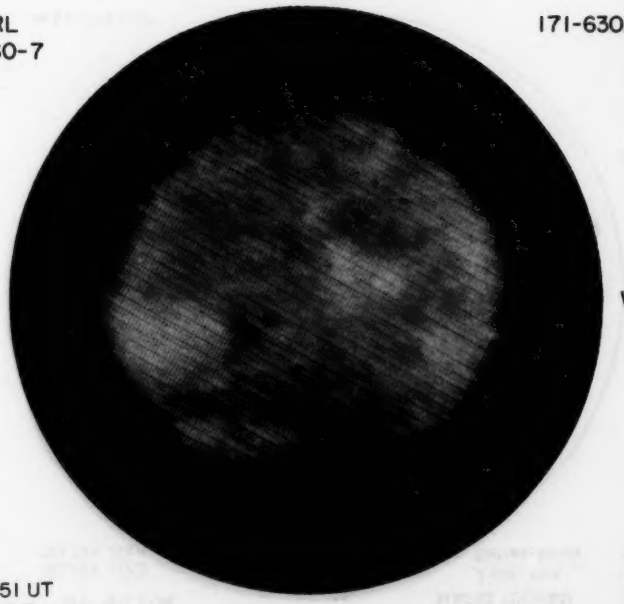
0718 UT

Sp

Np

NRL
OSO-7

171-630A



E

W

0851 UT
COUNT =

Sp

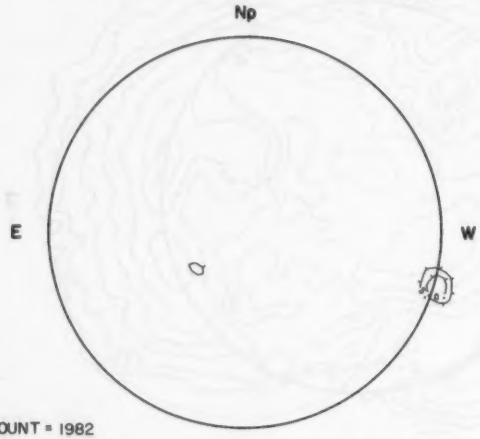
55
Jul 73

JULY 16, 1973 (P=4.01, B_o=4.45, L_o=134.01)

56
Jul 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 1982
ROLL = 35.5°
P-TH = -5.66

2337 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

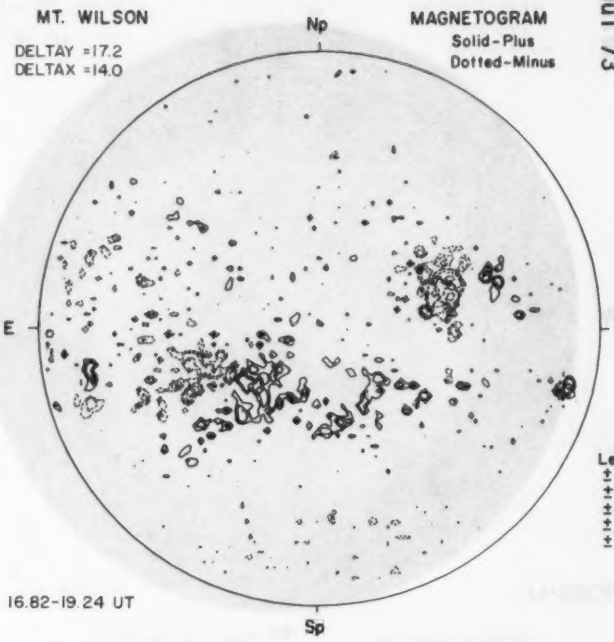
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY =17.2
DELTAX =14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

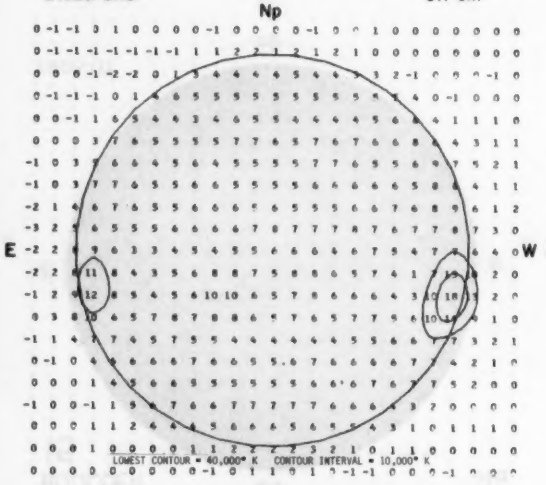


Levels
±5
±10
±20
±40
±80

16.82-19.24 UT

STANFORD

9.1 cm

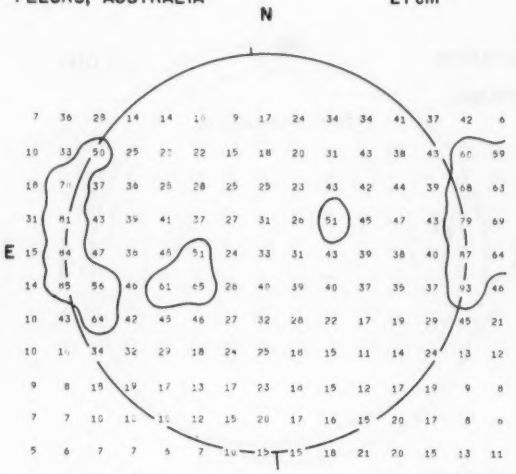


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

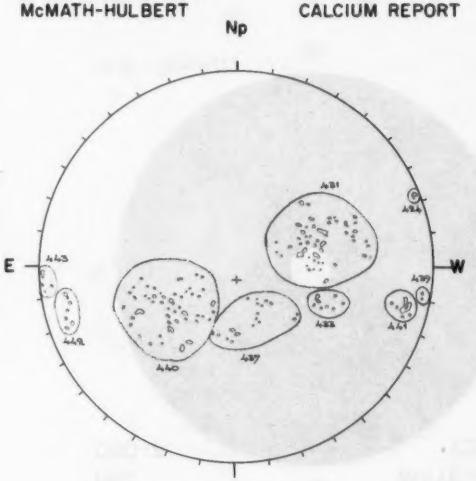


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1145 UT

BOULDER

Hα

BOULDER

SUNSPOTS

NRL

WHITE-LIGHT

20-21 UT

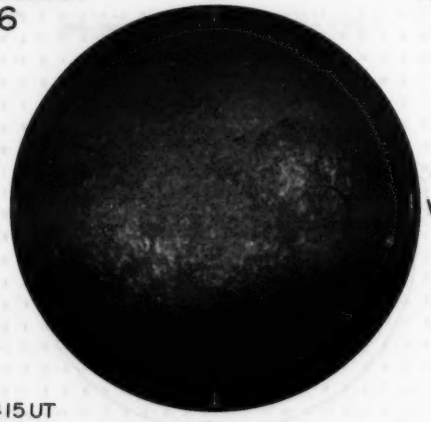
02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1145 UT

BOULDER
16

Np

Hα



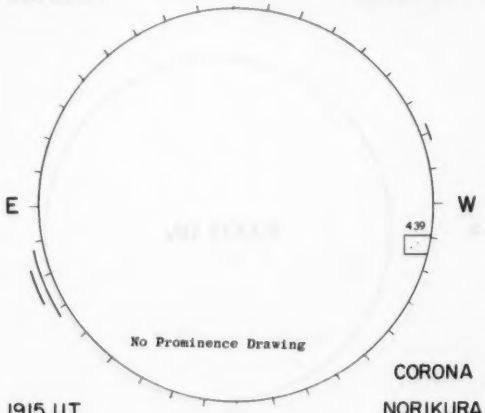
1415 UT

Sp

BOULDER

Np

SUNSPOTS



1915 UT

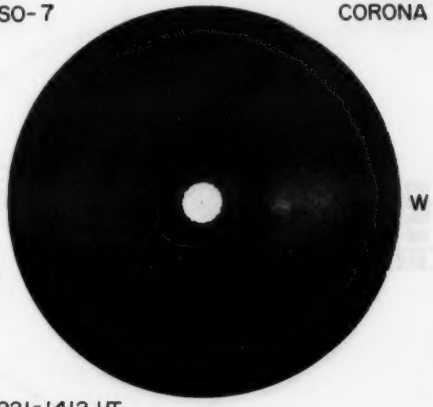
Sp

CORONA
NORIKURA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

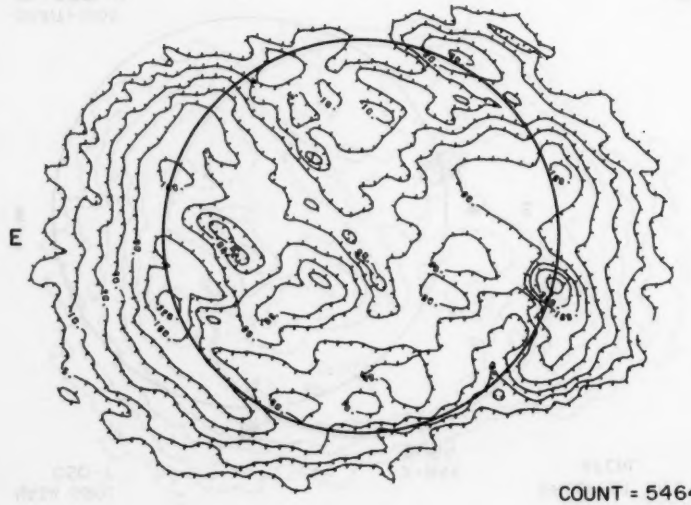


0921-1412 UT

Sp

Np

NASA GSFC
OSO-7



2337 UT

Sp

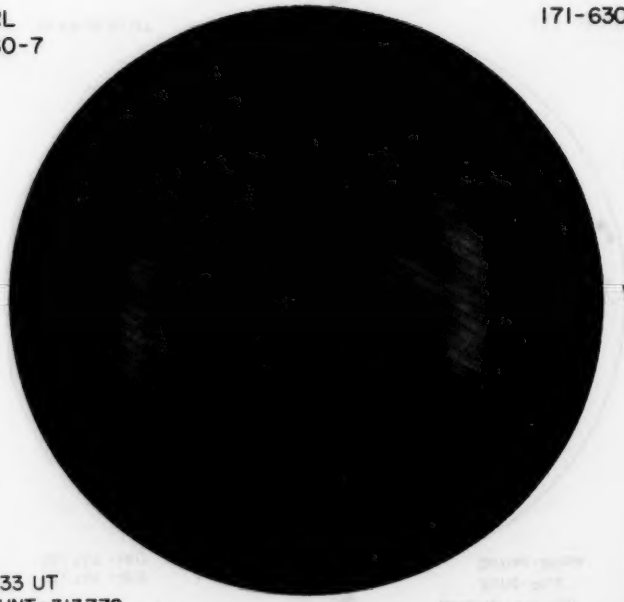
COUNT = 54647
ROLL = 35.5°
P-TH = -5.66

FE XV
284A

Np

NRL
OSO-7

171-630A



2333 UT
COUNT = 313770

Sp

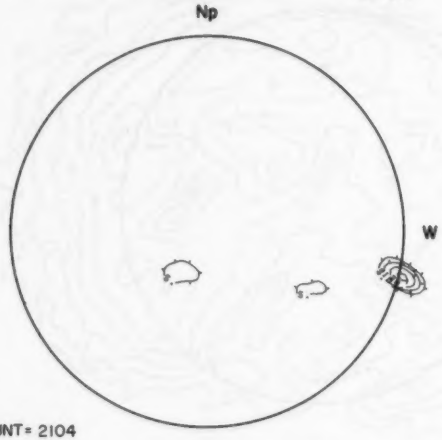
57
Jul 73

JULY 17, 1973 (P = 4.45, B_o = 4.54, L_o = 120.78)

58 Jul 73

NASA GSFC
OSO-7

X-RAY
8-16A



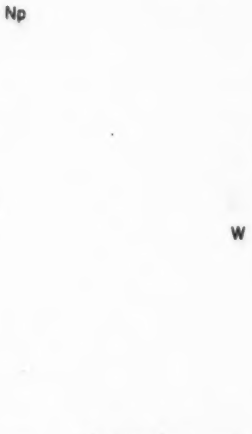
COUNT = 2104
ROLL = 36.1°
P-TH = -5.64

0504 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

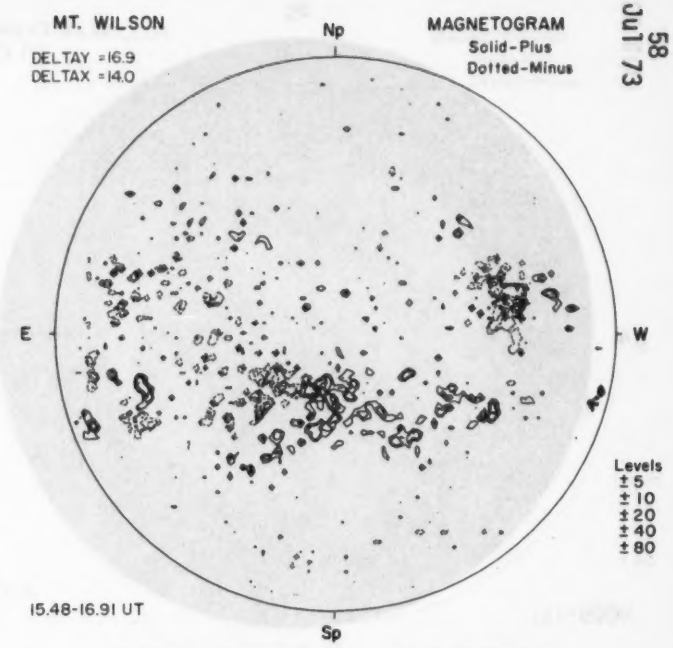


Contours in Intervals of 200° K

MT. WILSON

DELTAY = 16.9
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

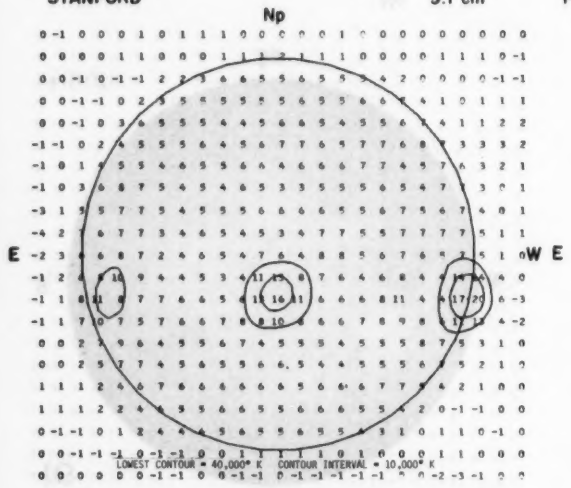


Levels
± 5
± 10
± 20
± 40
± 80

15.48-16.91 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

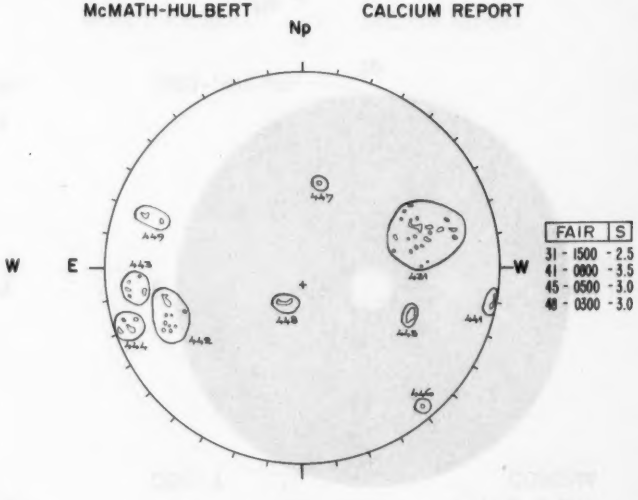
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1205 UT

BOULDER

Hα

BOULDER

SUNSPOTS

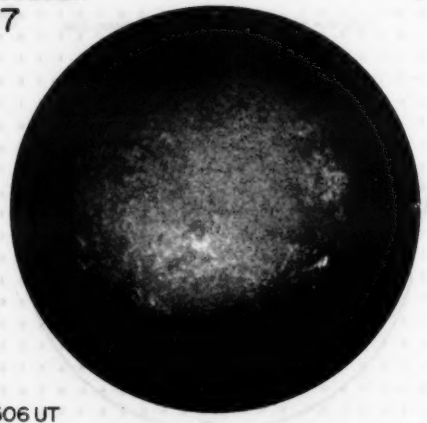
NRL

WHITE-LIGHT

BOULDER
17

Np

Hα



E

W

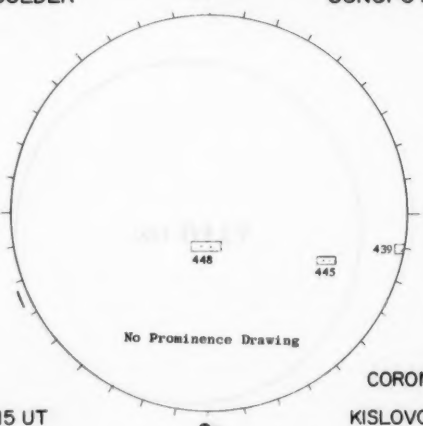
1506 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1815 UT

Sp

CORONA

KISLOVODSK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

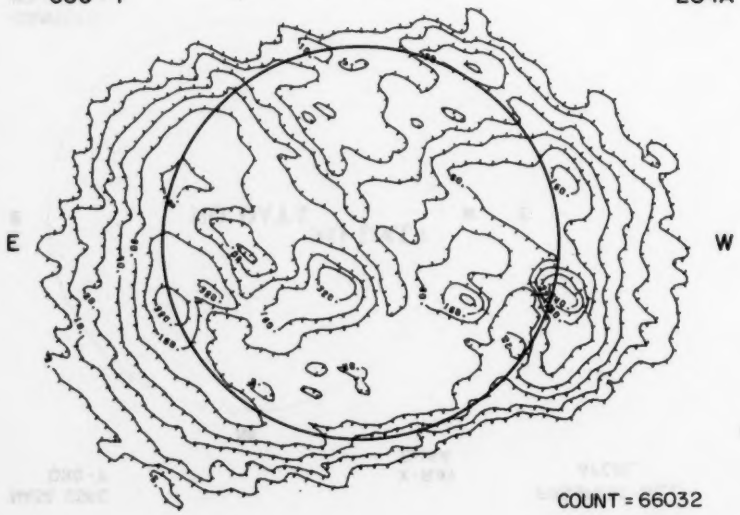
W

0952-1443 UT

Sp

NASA GSFC
OSO-7

Np



E

W

0504 UT

Sp

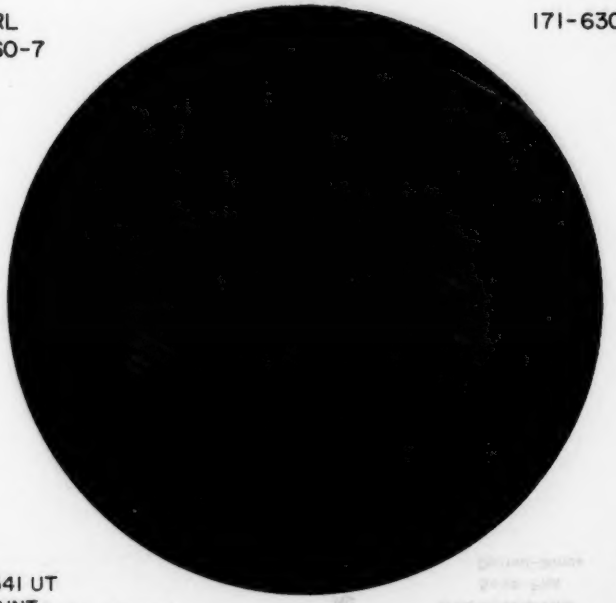
FE XV
284A

COUNT = 66032
ROLL = 36.1°
P-TH = -5.64

NRL
OSO-7

Np

171-630A



E

W

0541 UT
COUNT =

Sp

59
Jul 73

JULY 18, 1973 (P=4.89, B_o=4.64, L_o=107.55)

60 Jul 73

NASA GSFC
OSO-7

X-RAY
8-16A

PROSPECT HILL
AFCRL

8.6 mm

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Np

E NO DATA W

Np

E NO DATA W

Np

E NO DATA W

Levels
±5
±10
±20
±40
±80

Sp

COUNT=
ROLL =
P-TH =

Counts per 0.125 sec.

Sp

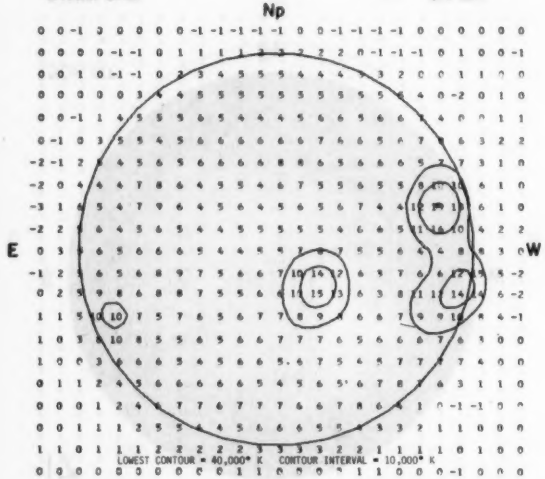
Contours in Intervals of 200° K

Sp

STANFORD

9.1 cm

Np



E W

Sp

Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

N

NO DATA

W E

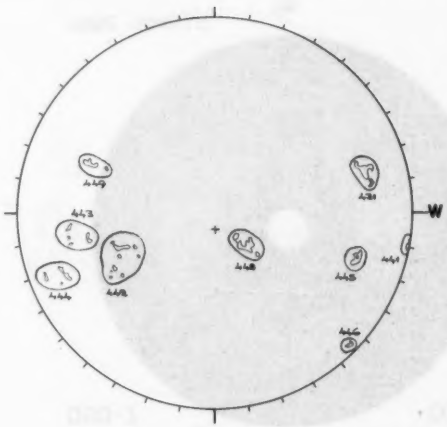
S

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

Np



W E W

Sp

1305UT

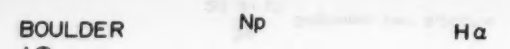
CALCIUM REPORT

GOOD	M
31 - 1000	- 3.0
45 - 0600	- 3.0
48 - 0700	- 3.5
49 - 0400	- 2.5

BOULDER

Np

Hα



E W

BOULDER

Np

SUNSPOTS

NRL

Np

WHITE-LIGHT

20-21 UT 02-03 UT Brightness Unit 1,700° K 130301

BOULDER
18

Np

Hα

E

NO DATA

W

Sp

BOULDER

Np

SUNSPOTS

E

W

CORONA

NO DATA

KISLOVODSK

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

0845-1336 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A

NRL
OSO-7

171-630A

E

NO DATA

W

E

W

COUNT =
ROLL =
P-TH =

Sp

0533 UT
COUNT =

Sp

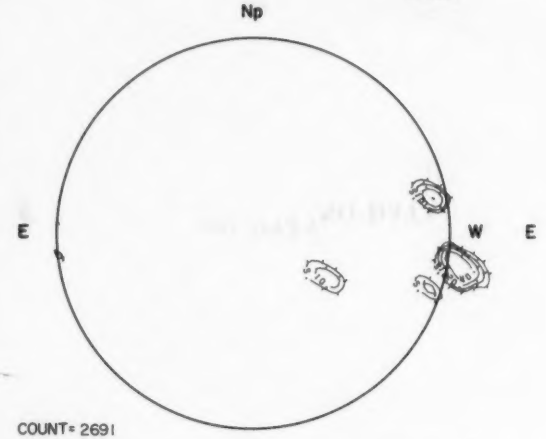
61
Jul 73

JULY 19, 1973 (P=5.33, B_o=4.73, L_o=94.31)

62
Jul 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT= 2691
ROLL = 41.4°
P-TH = -5.49

0430 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

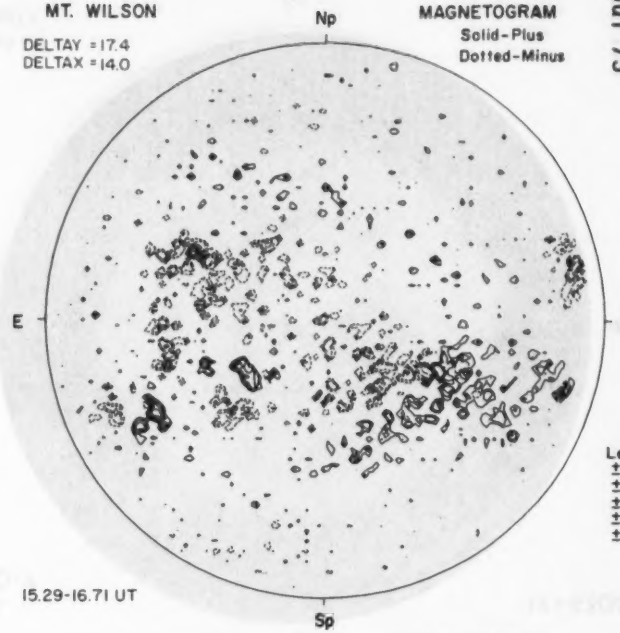
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

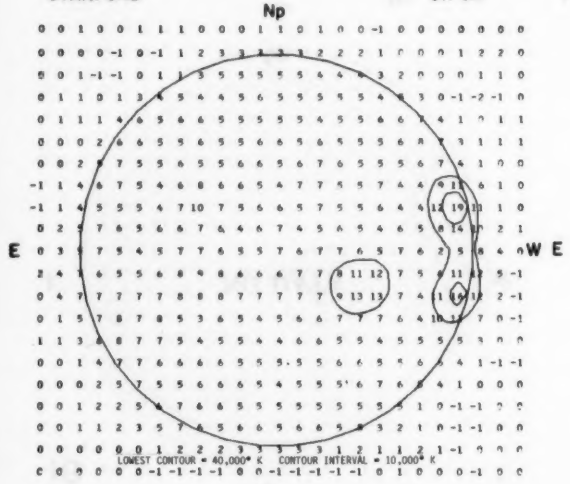


Levels
±5
±10
±20
±40
±80

15.29-16.71 UT

STANFORD

9.1 cm



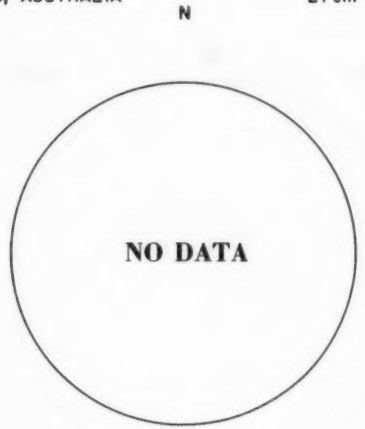
LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

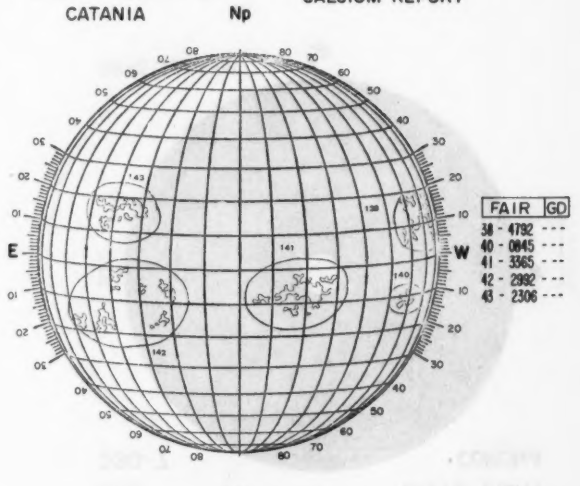


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

CATANIA

CALCIUM REPORT

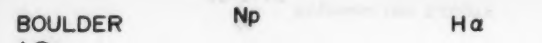


0747 UT

BOULDER

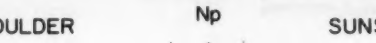
Np

Hα



BOULDER

Np

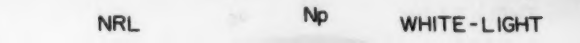


SUNSPOTS

NRL

Np

WHITE-LIGHT



BOULDER
19

Np

Hα

E

NO DATA

W

Sp

BOULDER

Np

SUNSPOTS

E

W

NO DATA

Sp

CORONA

SAC PEAK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

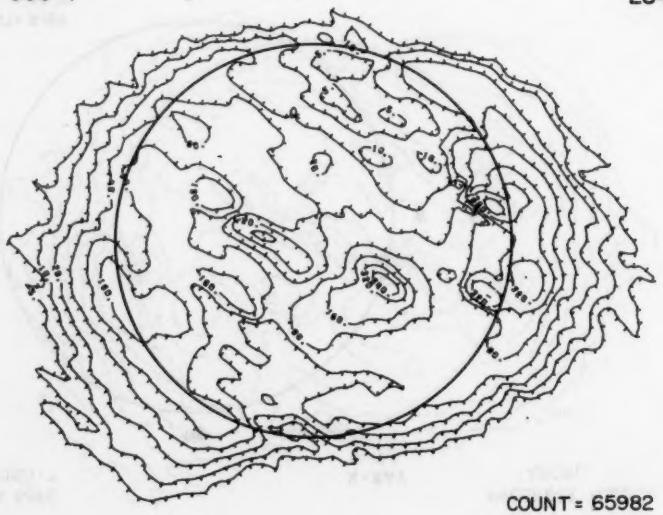
0738-1228 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



E

W

COUNT = 65982
ROLL = 41.4°
P-TH = -5.49

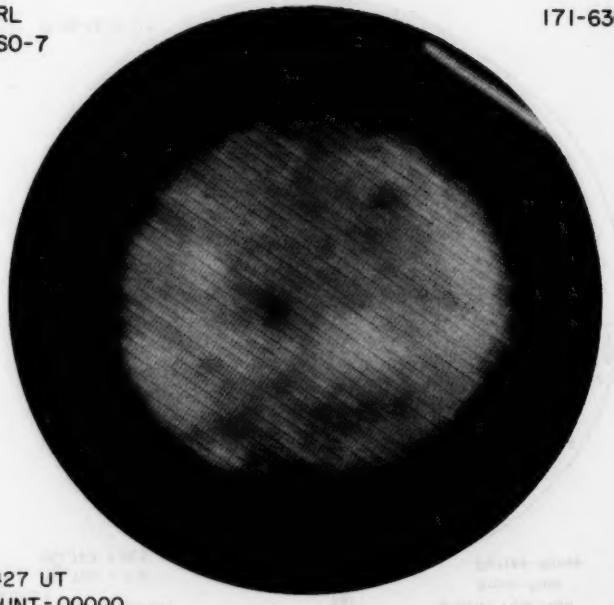
0430 UT

Sp

NRL
OSO-7

Np

171-630A



E

W

0427 UT
COUNT = 00000

Sp

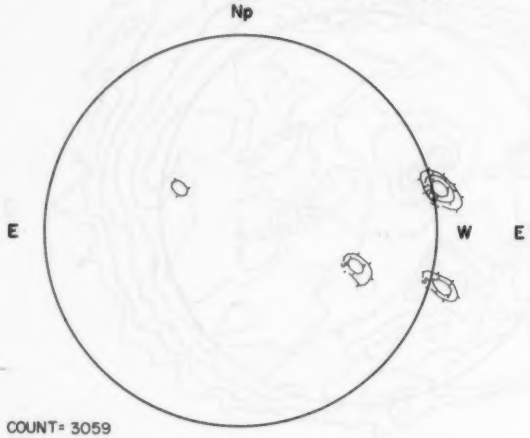
63
Jul 73

JULY 20, 1973 (P=5.77, B_o=4.82, L_o=81.08)

64 Jul 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT= 3059
ROLL = 44.2°
P-TH = -5.40

0633 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

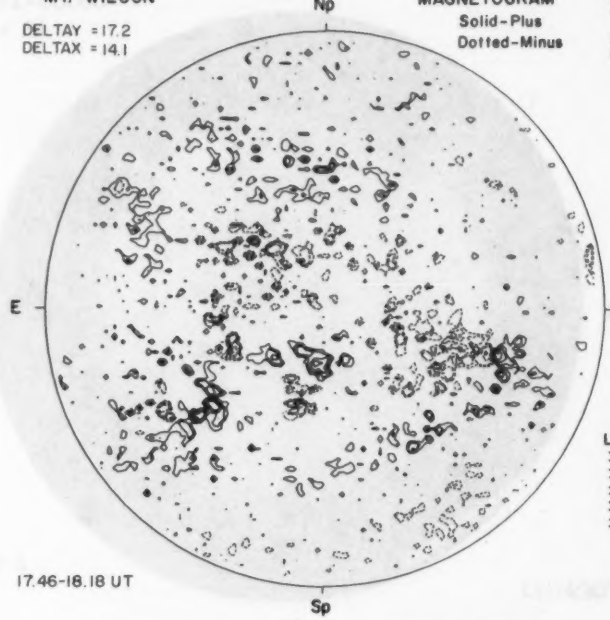
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.2
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus

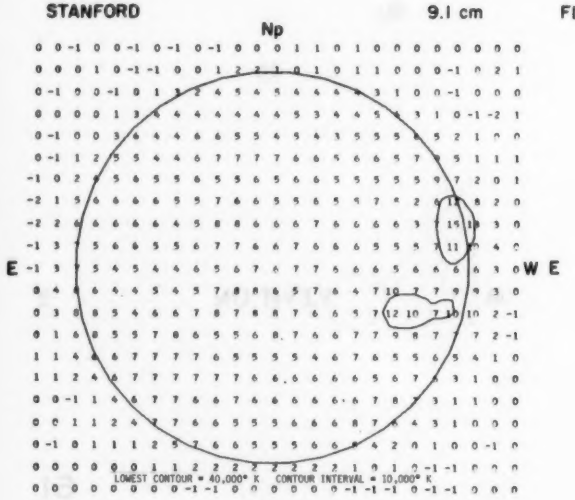


Levels
±5
±10
±20
±40
±80

17.46-18.18 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

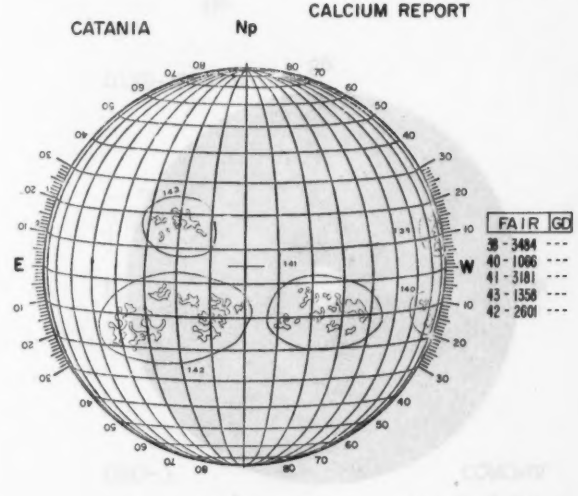
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

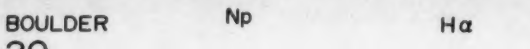
CATANIA

CALCIUM REPORT



0905 UT

BOULDER



Hα

BOULDER

SUNSPOTS

NRL

WHITE-LIGHT

20-21 UT

02-03 UT Brightness Unit 1,700° K

0905 UT

BOULDER
20

Np

Hα

E

NO DATA

W

Sp

BOULDER

Np

SUNSPOTS

E

W

NO DATA

Sp

CORONA

PIC-DU-MIDI

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

0808-1237 UT

Sp

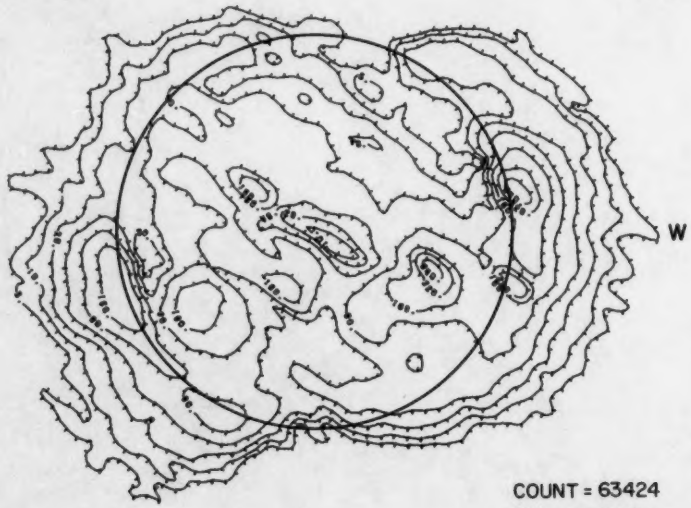
Np

NASA GSFC
OSO-7

FE XV
284A

E

W



COUNT = 63424
ROLL = 44.2°
P-TH = -5.40

0633 UT

Sp

Np

NRL
OSO-7

171-630A

E

W

0320 UT
COUNT=

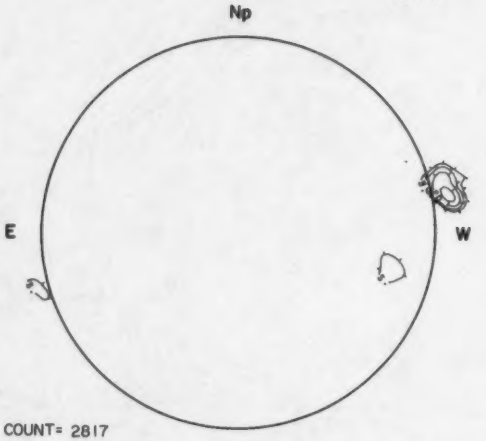
Sp

65
Jul 73

JULY 21, 1973 (P=6.20, B_o=4.91, L_o=67.85)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT= 2817
ROLL = 44.3°
P-TH = -5.32

0526 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

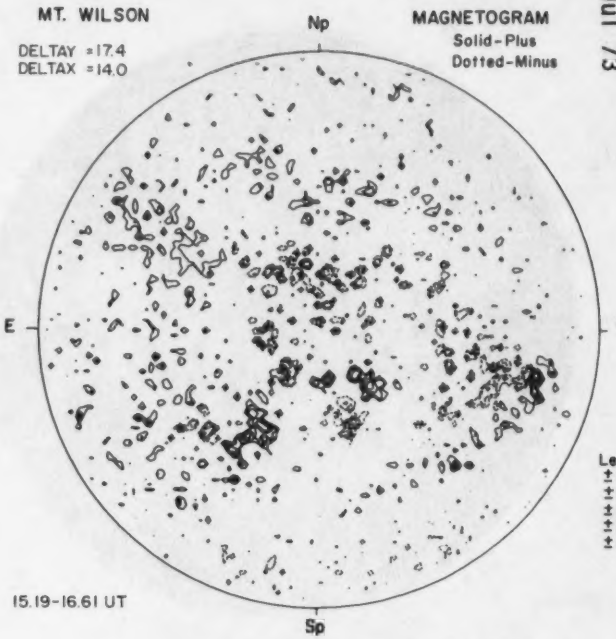
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY =17.4
DELTAX =14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

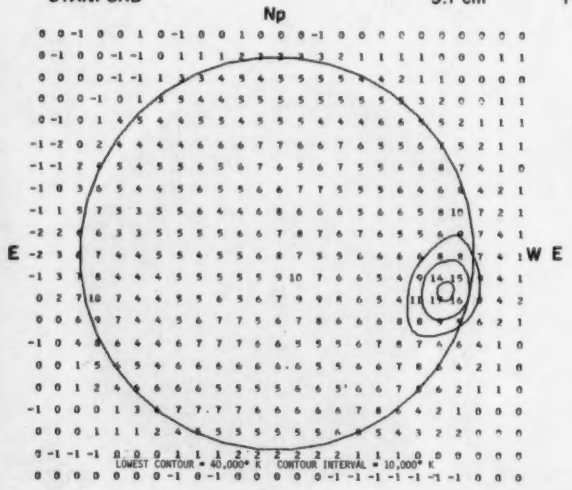


Levels
±5
±10
±20
±40
±80

15.19-16.61 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

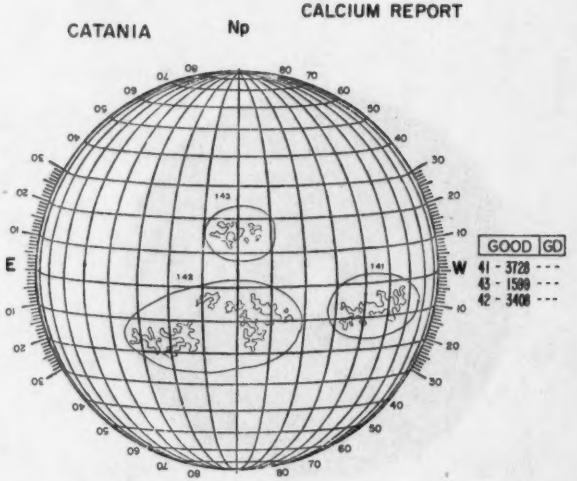
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

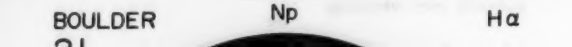
CATANIA

CALCIUM REPORT



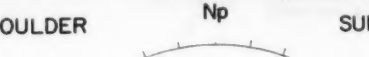
1117 UT

BOULDER



Hα

BOULDER



SUNSPOTS

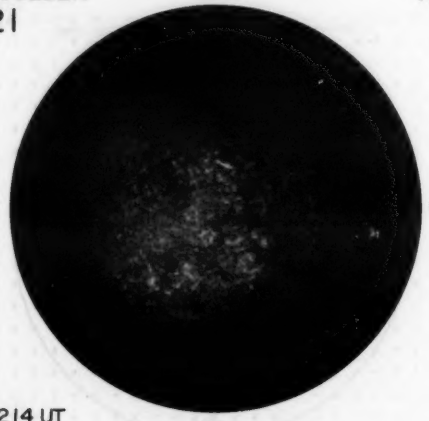
NRL
OSO-7

WHITE-LIGHT
CORONA

BOULDER
21

Np

Hα



E

W

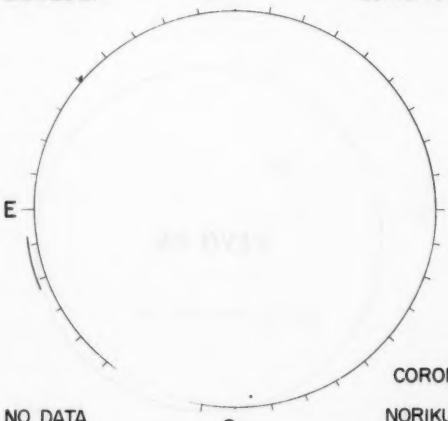
2214 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

NO DATA

Sp

CORONA

NORIKURA

NO DATA W. LIMB

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

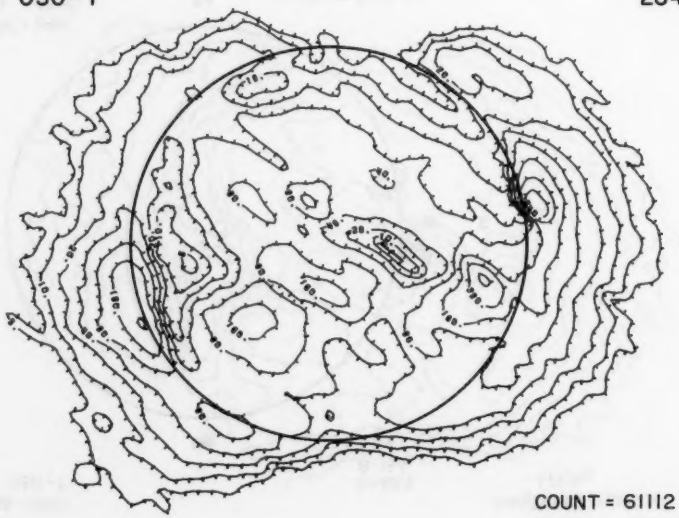
0700-1151 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 61112
ROLL = 44.3°
P-TH = -5.32

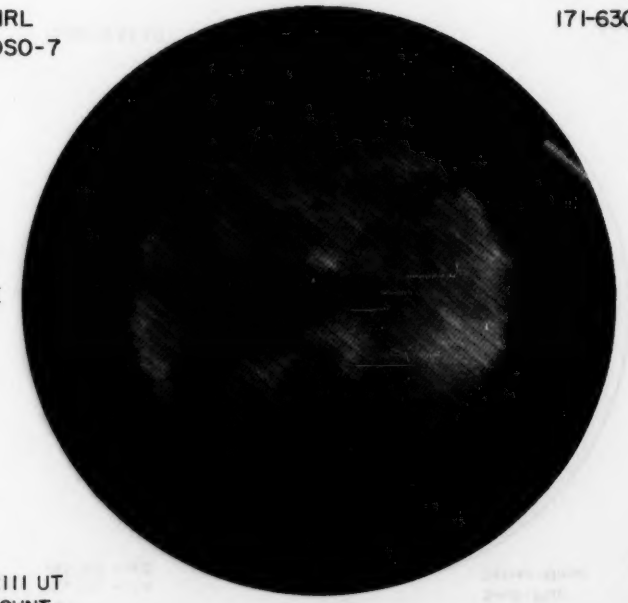
0526 UT

Sp

NRL
OSO-7

Np

171-630A



E

W

2111 UT
COUNT =

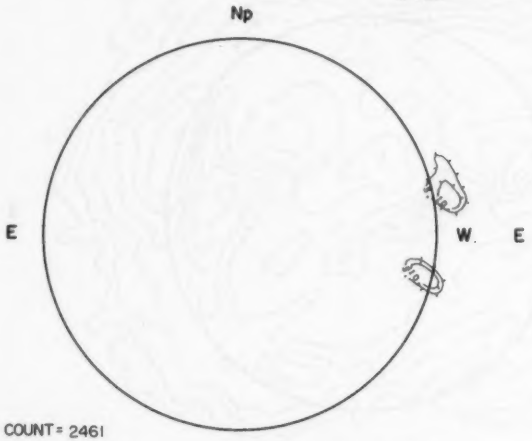
Sp

67
Jul 73

JULY 22, 1973 (P = 6.63, B_o = 5.00, L_o = 54.62)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2461
ROLL = 43.6°
P-TH = -5.25

0420 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

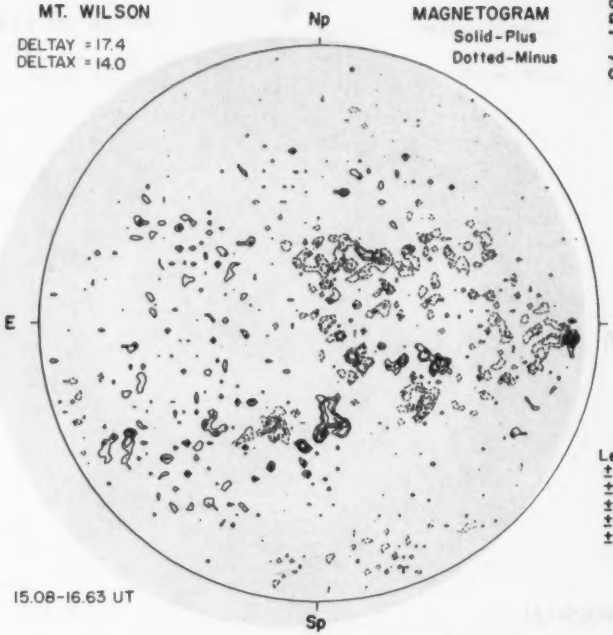
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

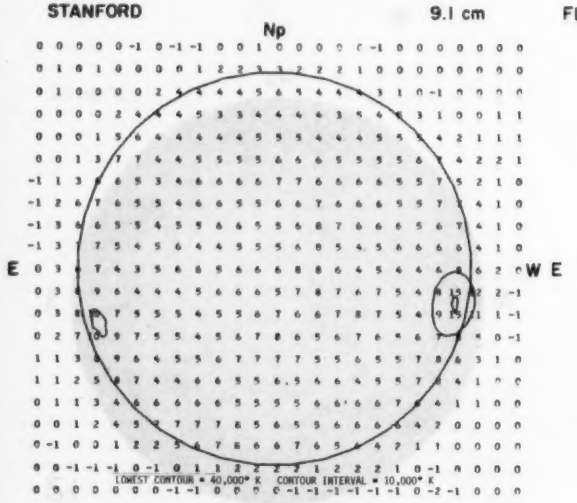


Levels
±5
±10
±20
±40
±80

15.08-16.63 UT

STANFORD

9.1 cm



LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

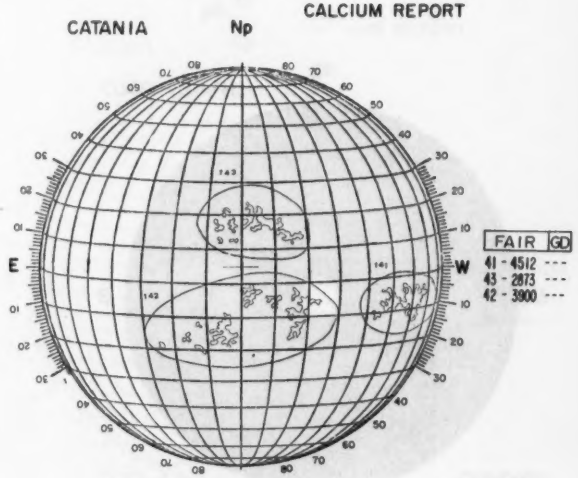
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

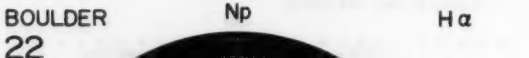
CATANIA

CALCIUM REPORT



0638 UT

BOULDER
22

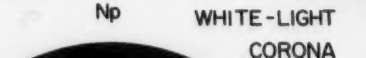


Hα

BOULDER

SUNSPOTS

NRL
OSO-7

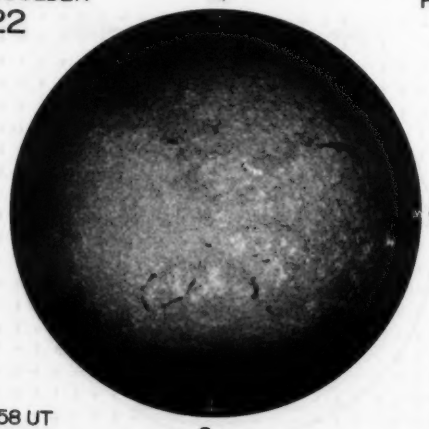


WHITE-LIGHT
CORONA

BOULDER
22

Np

Hα



E

W

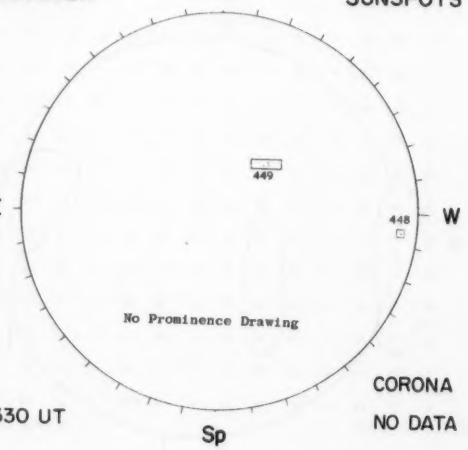
1358 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1330 UT

Sp

CORONA

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

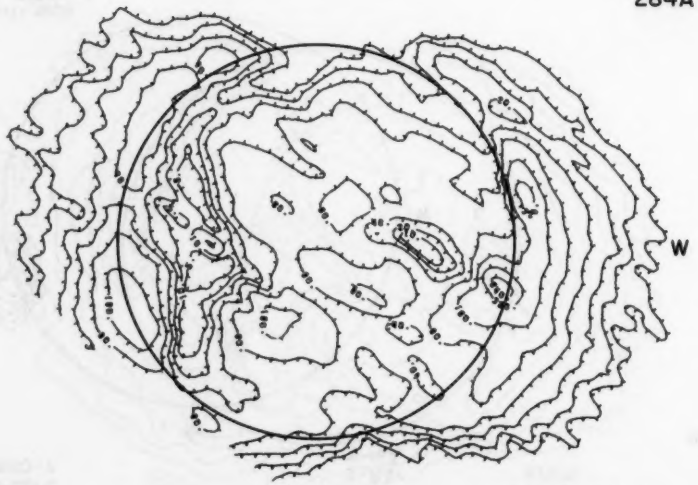
0534-1045 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



E

W

COUNT = 56296
ROLL = 43.6°
P-TH = -5.25

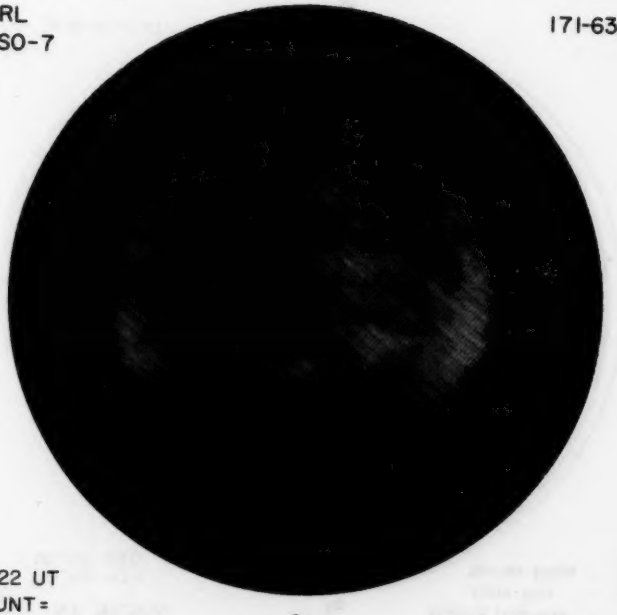
0420 UT

Sp

NRL
OSO-7

Np

171-630A



E

W

2322 UT
COUNT =

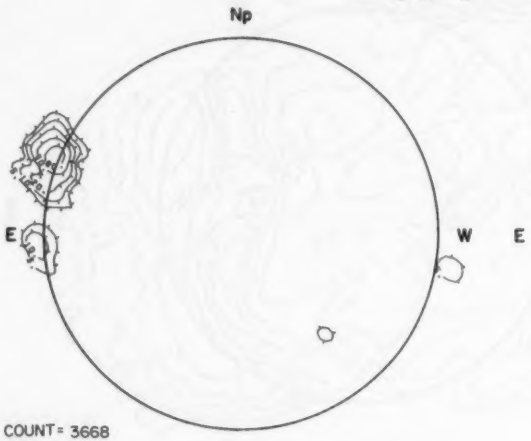
Sp

69
Jul 73

JULY 23, 1973 (P = 7.06, B_o = 5.08, L_o = 41.39)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3668
ROLL = 42.4°
P-TH = -5.09

2316 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

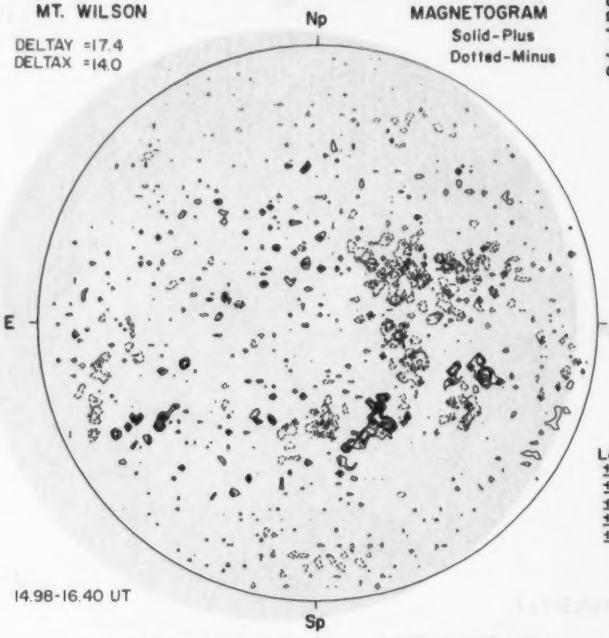
Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

70 Jul 73

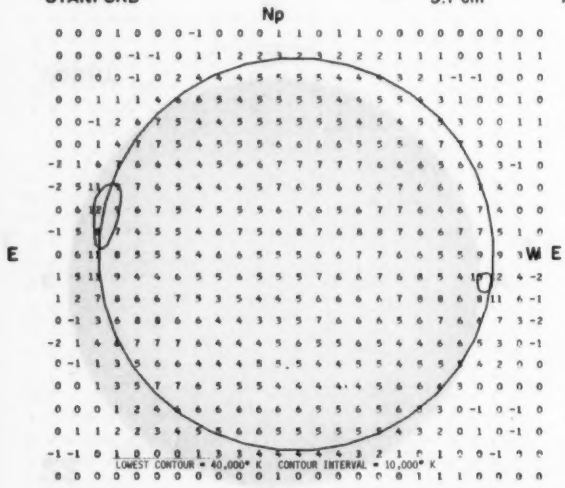


Levels
±5
±10
±20
±40
±80

14.98-16.40 UT

STANFORD

9.1 cm

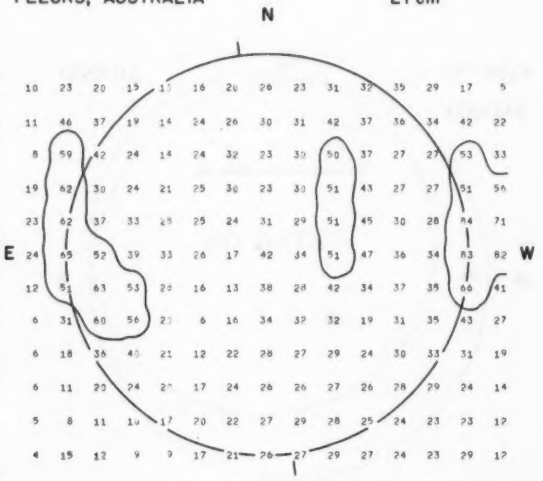


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

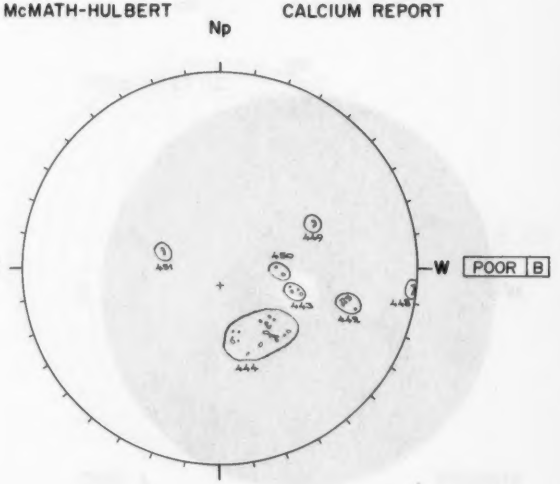


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT



1800 UT

BOULDER
23

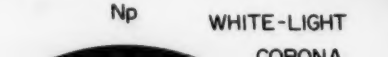
Hα

BOULDER

SUNSPOTS

NRL
OSO-7

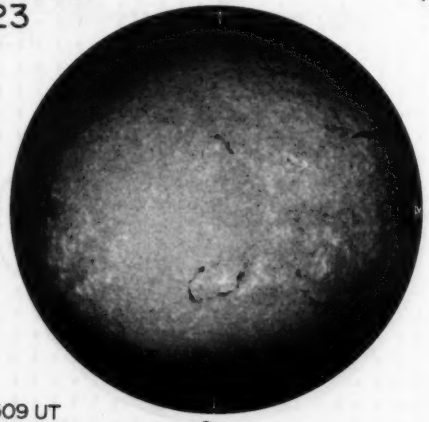
WHITE-LIGHT
CORONA



BOULDER
23

Np

H α



E W

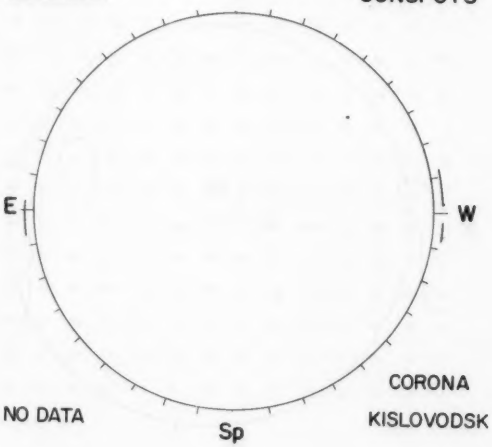
Sp

1509 UT

BOULDER

Np

SUNSPOTS



E W

CORONA

NO DATA

Sp

KISLOVODSK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E W

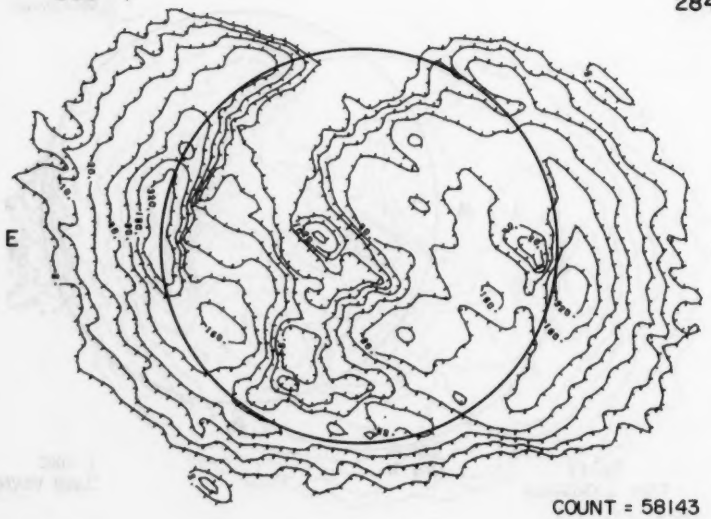
0624-1114 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E W

COUNT = 58143
ROLL = 42.4°
P-TH = -5.09

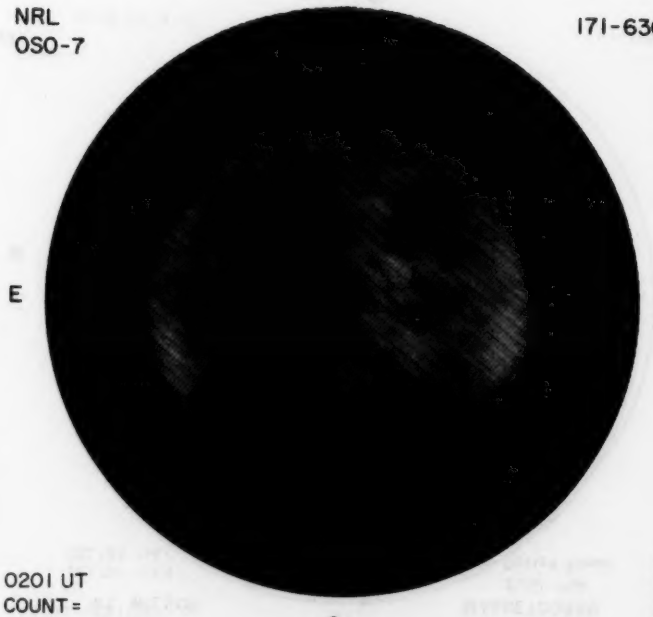
2316 UT

Sp

Np

NRL
OSO-7

171-630A



E W

0201 UT
COUNT =

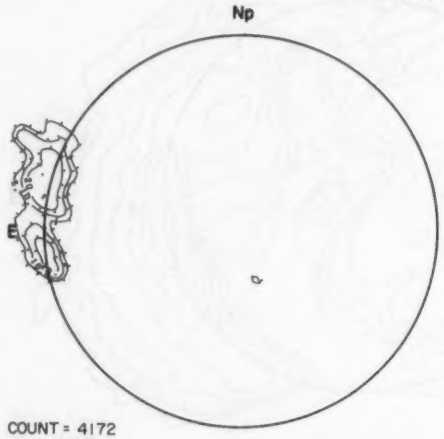
Sp

71
Jul 73

JULY 24, 1973 (P = 7.48, B_o = 5.17, L_o = 28.16)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 4172
ROLL = 41.7°
P-TH = -5.01

2246 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

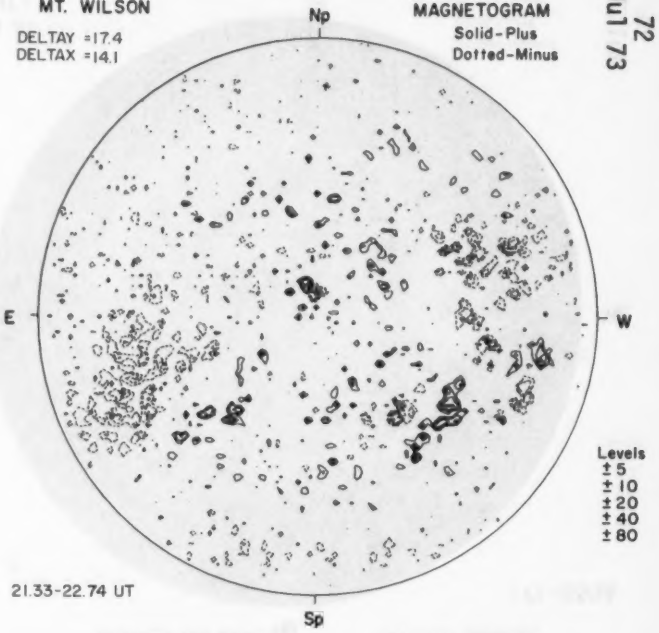
Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Jul 72
Jul 73

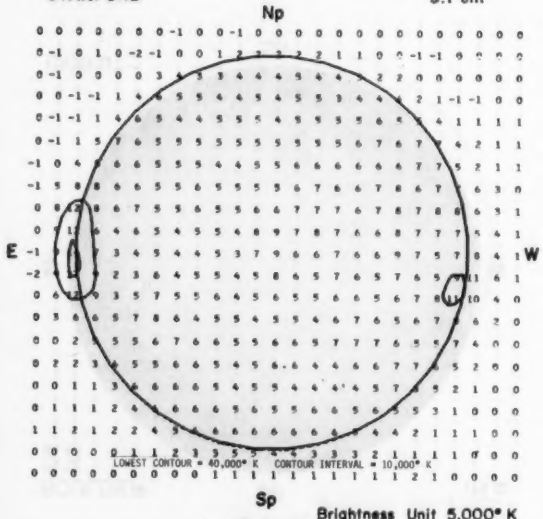


Levels
±5
±10
±20
±40
±80

21.33-22.74 UT

STANFORD

9.1 cm

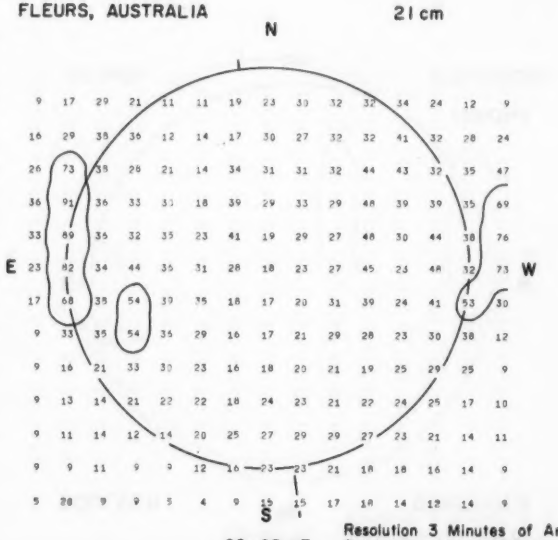


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

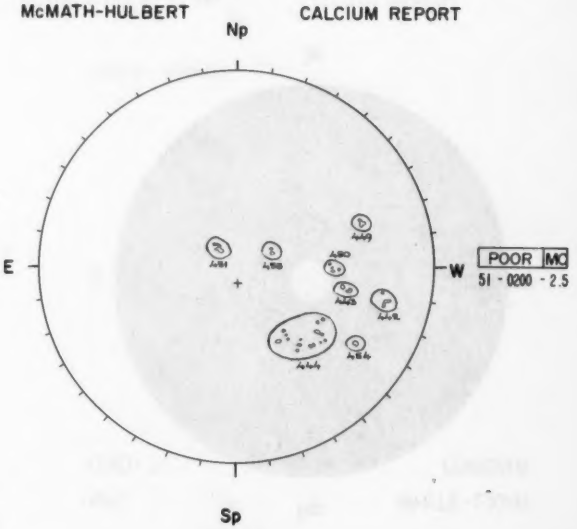


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

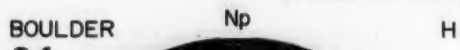
McMATH-HULBERT

CALCIUM REPORT



1445 UT

BOULDER



Hα

BOULDER

SUNSPOTS

NRL

WHITE-LIGHT

BOULDER
24

Np

Hα

E

W

Sp

1427 UT

BOULDER

Np

SUNSPOTS

451

455

E

W

CORONA

SAC PEAK

1340 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

0520 - 0831 UT

Sp

NASA GSFC
OSO - 7

Np

FE XV
284A

E

W

COUNT = 72357
ROLL = 41.7°
P-TH = -5.01

2246 UT

Sp

NRL
OSO-7

Np

171-630A

E

W

2110 UT
COUNT = 321032

Sp

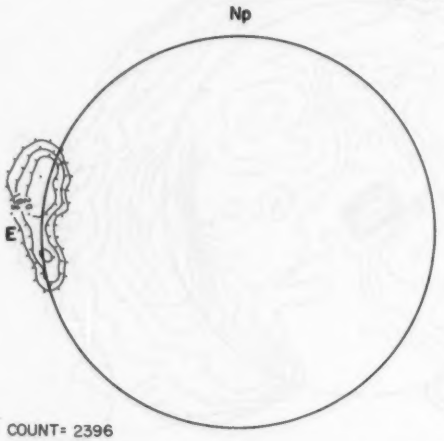
73
Jul 73

JULY 25, 1973 (P = 7.91, B_o = 5.25, L_o = 14.93)

Jul 73 74

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2396
ROLL = 40.7°
P-TH = -4.93

2001 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

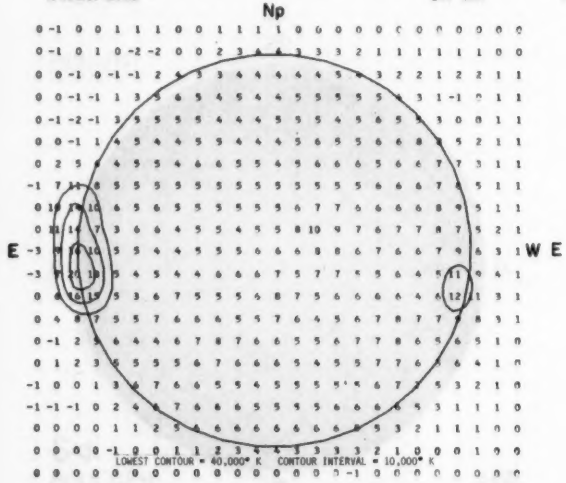
MT. WILSON

MAGNETOGRAM
Solid - Plus
Dotted - Minus

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

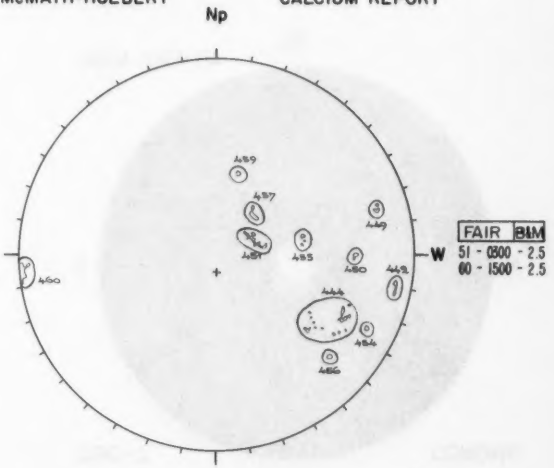
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

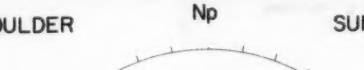


1845 UT

BOULDER
25

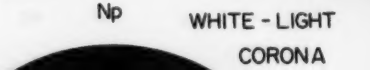
Hα

BOULDER



SUNSPOTS

NRL
OSO-7



WHITE - LIGHT
CORONA

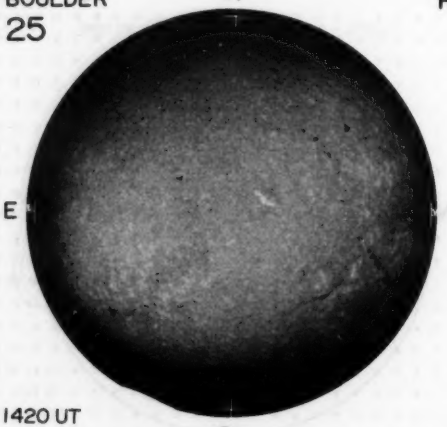
BOULDER
25

Np

Hα

E

W



1420 UT

Sp

BOULDER

Np

SUNSPOTS

E

W

460

CORONA

SAC PEAK

1347 UT

Sp

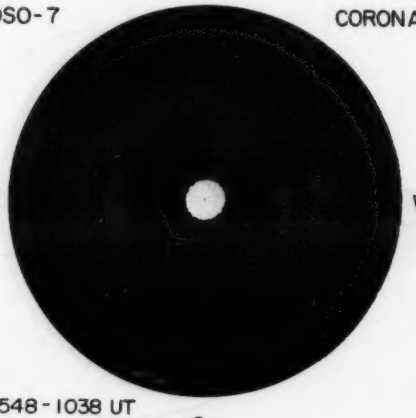
NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W



0548-1038 UT

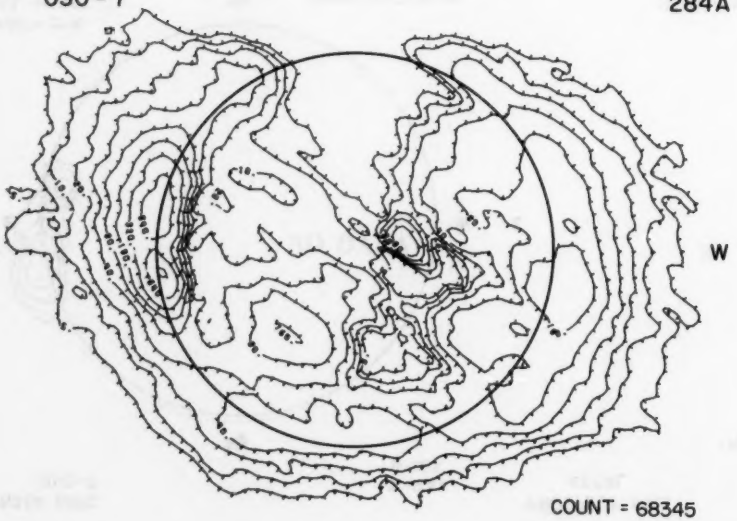
Sp

Np

NASA GSFC
OSO-7

FE XV
284A

W



COUNT = 68345
ROLL = 40.7°
P-TH = -4.93

2001 UT

Sp

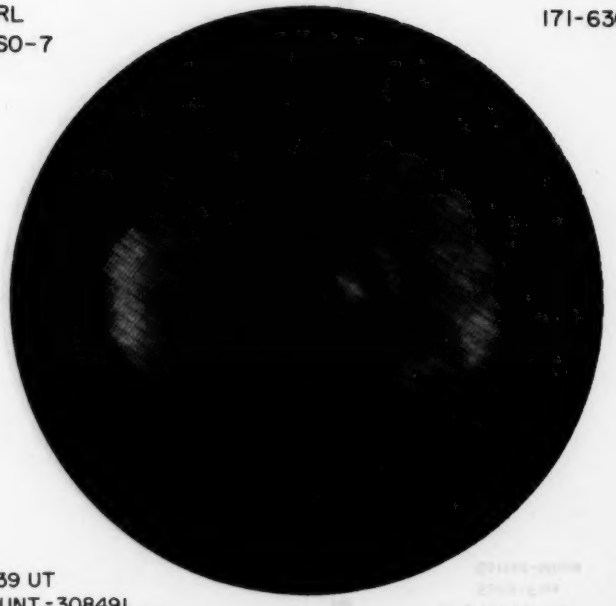
Np

NRL
OSO-7

171-630A

E

W



2139 UT
COUNT = 308491

Sp

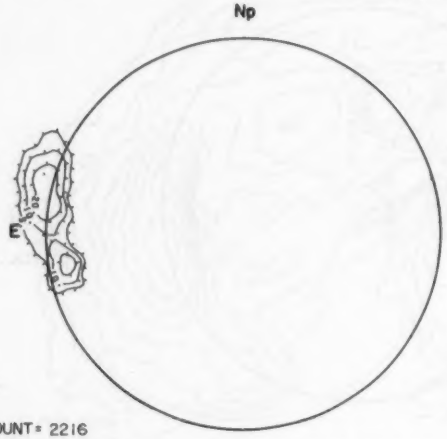
75
Jul 73

JULY 26, 1973 (P = 8.33, B_o = 5.34, L_o = 1.70)

76 Jul 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2216
ROLL = 38.9°
P-TH = -4.84

1854 UT

Counts per 0.125 sec.

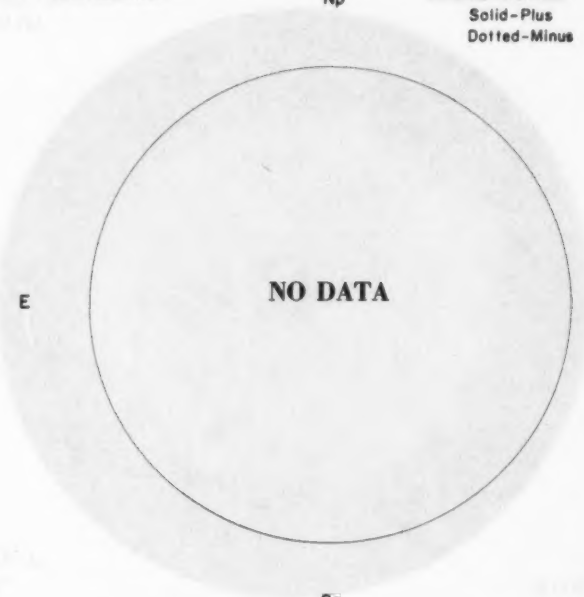
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON

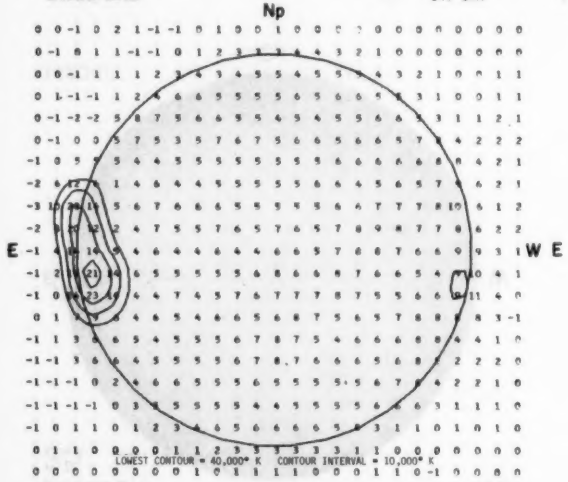
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

STANFORD

9.1 cm



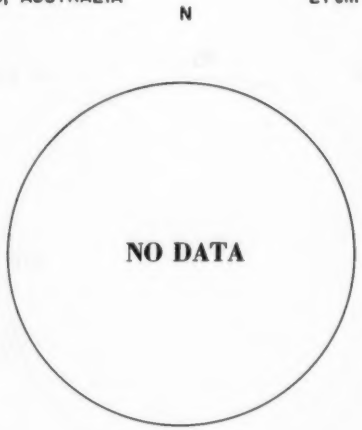
LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

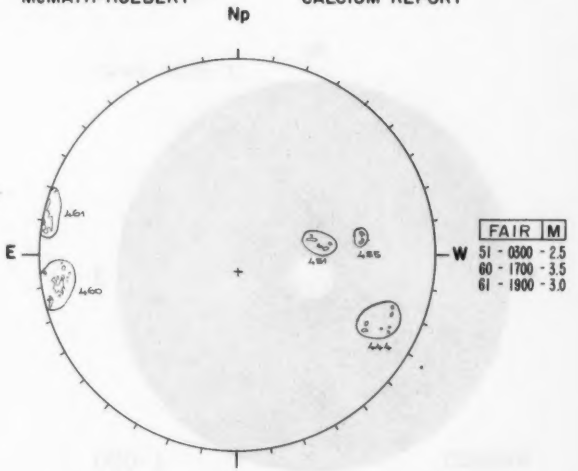


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

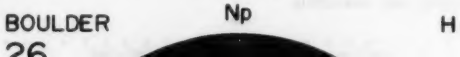
CALCIUM REPORT



1930 UT

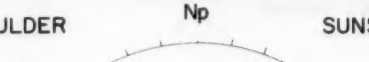
BOULDER
26

Hα

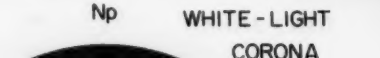


BOULDER

SUNSPOTS



NRL
OSO-7

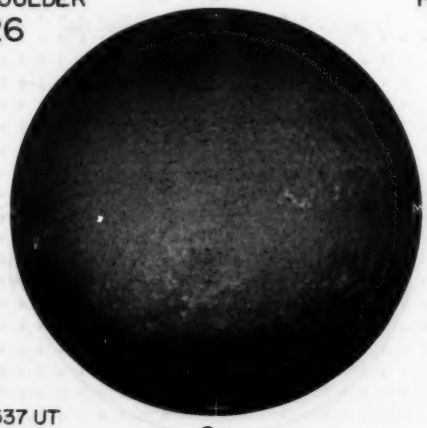


WHITE-LIGHT
CORONA

BOULDER
26

Np

Hα



E

W

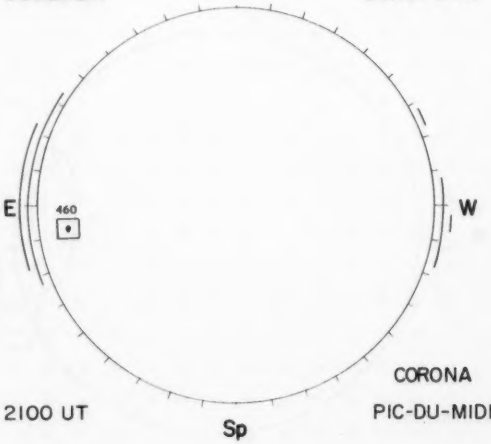
Sp

1537 UT

BOULDER

Np

SUNSPOTS



CORONA

2100 UT

Sp

PIC-DU-MIDI

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

0448-0930 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A

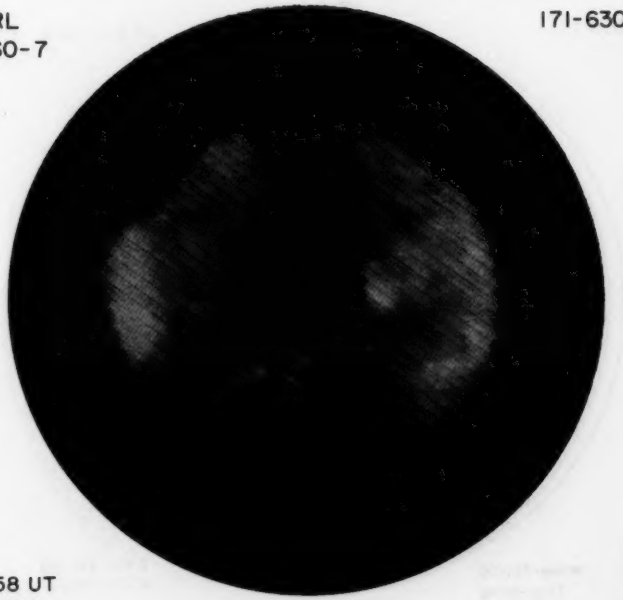
NRL
OSO-7

171-630A

E

NO DATA

W



E

W

COUNT =
ROLL =
P-TH =

1358 UT
COUNT =

Sp

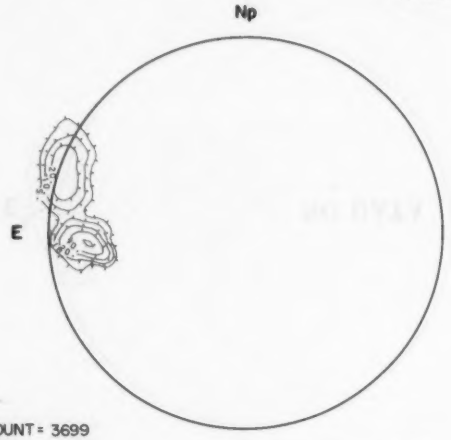
77
Jul 73

JULY 27, 1973 (P=8.75, B_o=5.42, L_o=348.48)

78 Jul 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3699
ROLL = 37.8°
P-TH = -4.80

0646 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

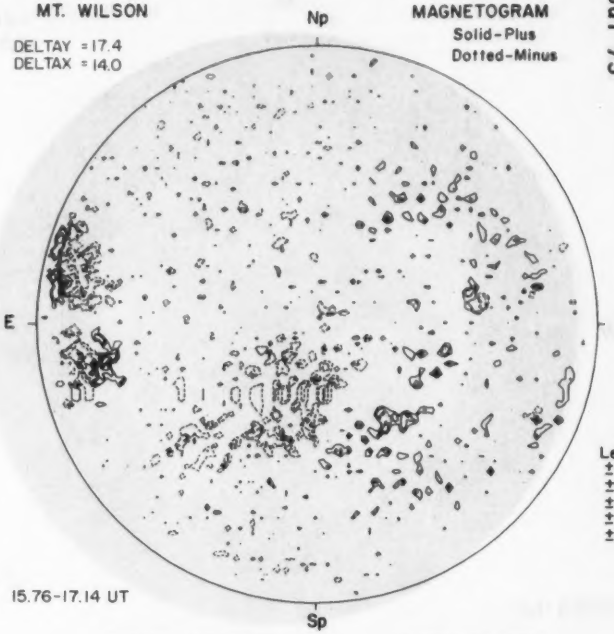
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

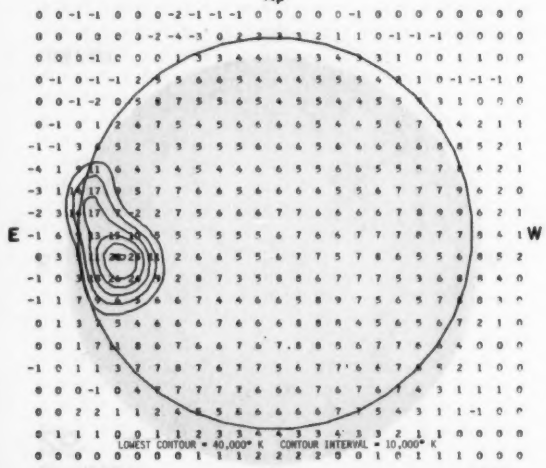


Levels
±5
±10
±20
±40
±80

15.76-17.14 UT

STANFORD

9.1 cm

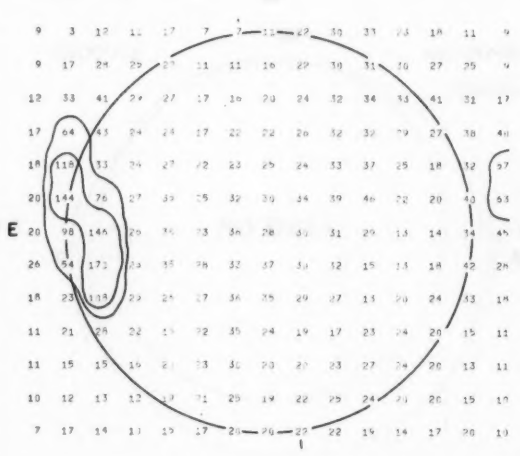


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

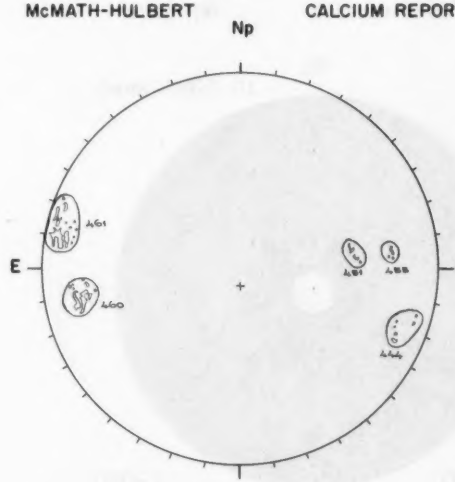


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

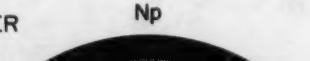
McMATH-HULBERT

CALCIUM REPORT



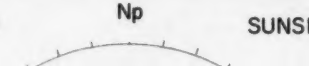
1420 UT

BOULDER
27



Hα

BOULDER



SUNSPOTS

NRL
OSO-7

WHITE-LIGHT
CORONA

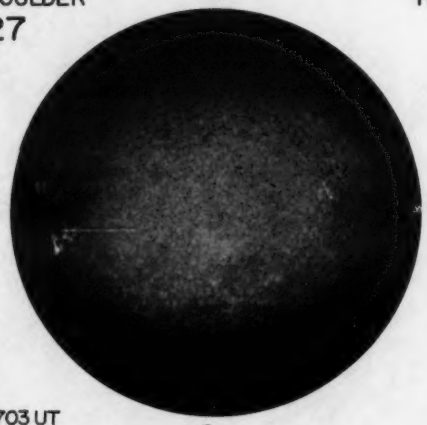
BOULDER
27

Np

Hα

E

W



1703 UT

Sp

BOULDER

Np

SUNSPOTS

E

W

460

CORONA

NORIKURA

1630 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

2100-0151 UT

Sp

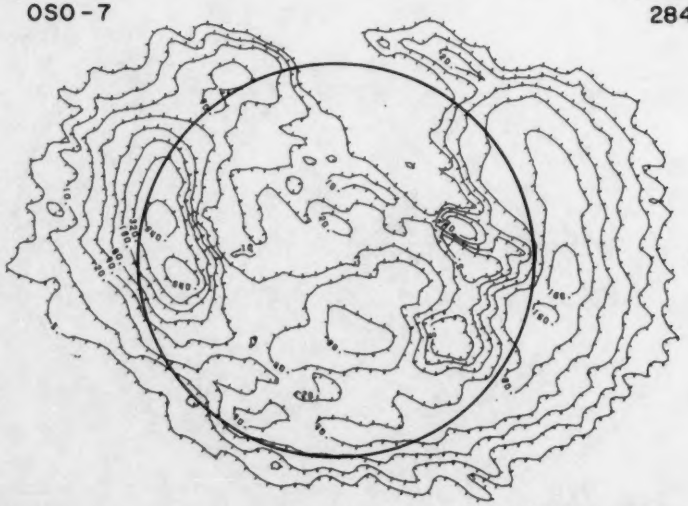
NASA GSFC
OSO-7

Np

FE XV
284A

E

W



COUNT = 55239
ROLL = 37.8°
P-TH = -4.80

0646 UT

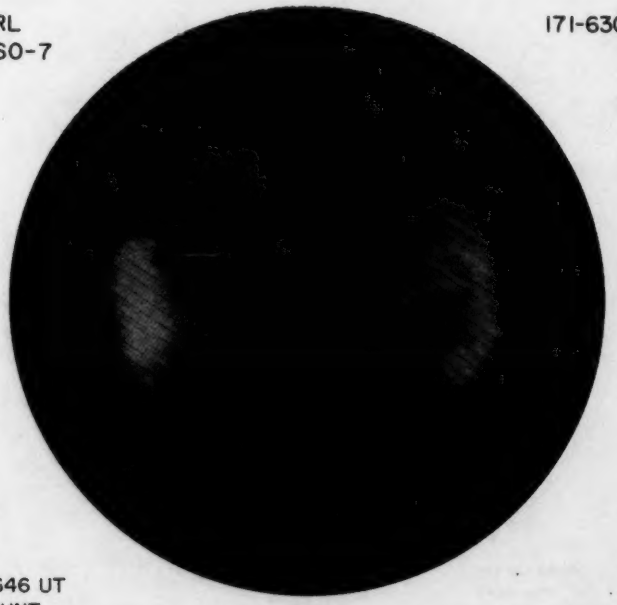
Sp

NRL
OSO-7

171-630A

E

W



0646 UT
COUNT =

Sp

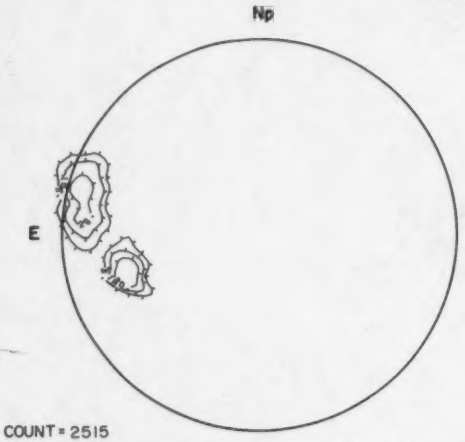
79
Jul 73

JULY 28, 1973 (P=9.16, B_o=5.50, L_o=335.25)

Jul 73 80

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2515
ROLL = 35.8°
P-TH = -4.70

0724 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

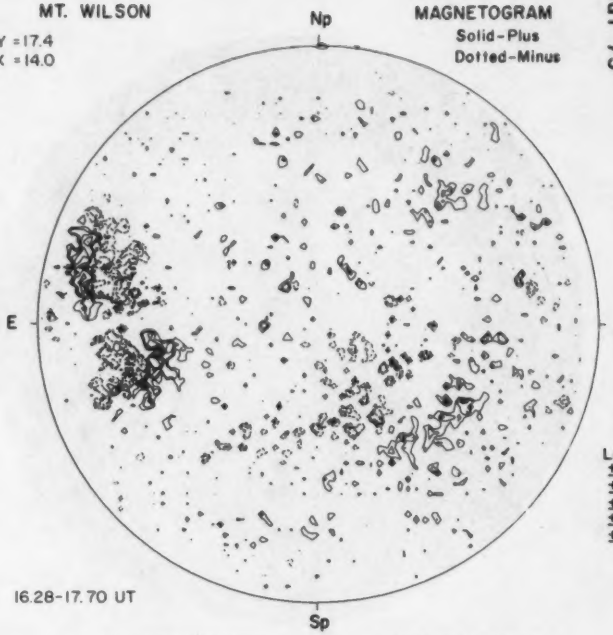
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid - Plus
Dotted - Minus

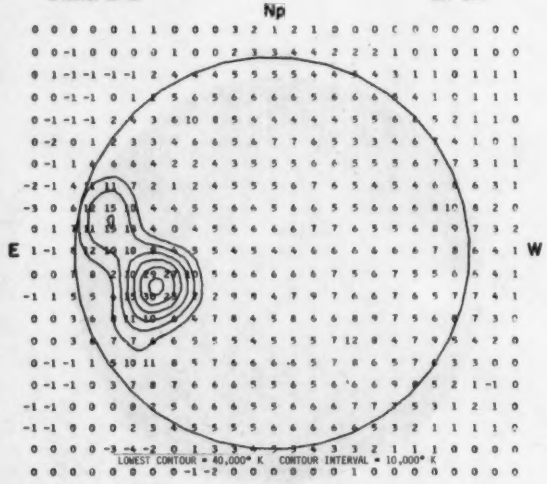


Levels
±5
±10
±20
±40
±80

16.28-17.70 UT

STANFORD

9.1 cm



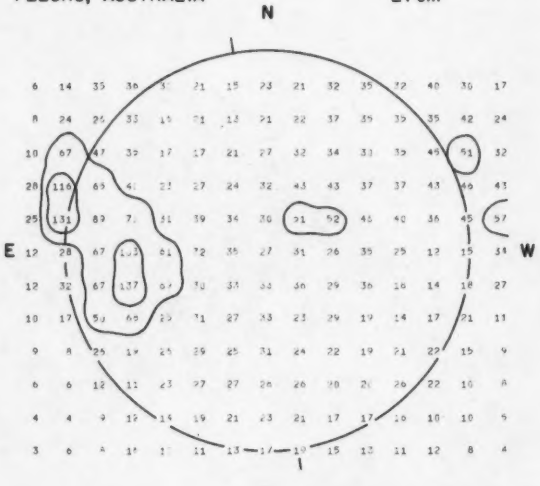
LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

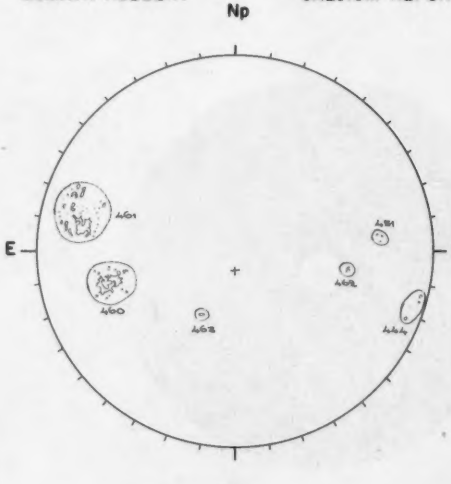


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1405 UT

BOULDER

Hα

BOULDER

SUNSPOTS

NRL

WHITE-LIGHT

20-21 UT

Brightness Unit 5,000° K

02-03 UT

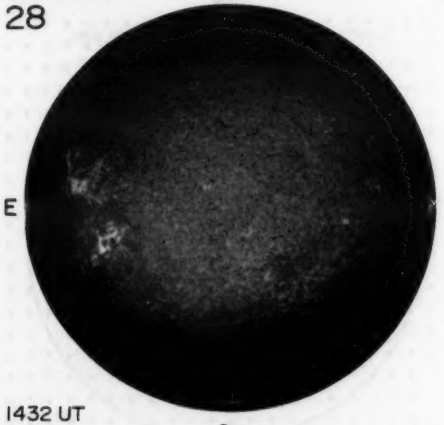
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1405 UT

BOULDER
28

Np

Hα



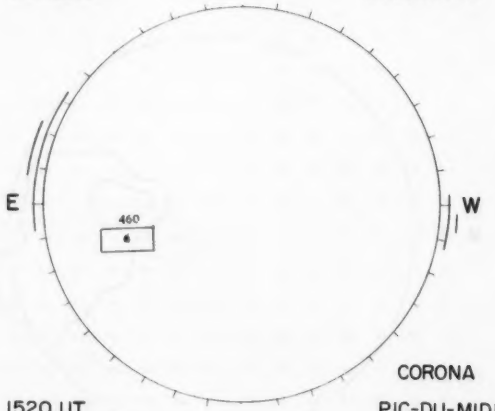
1432 UT

Sp

BOULDER

Np

SUNSPOTS



1520 UT

Sp

CORONA
PIC-DU-MIDI

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

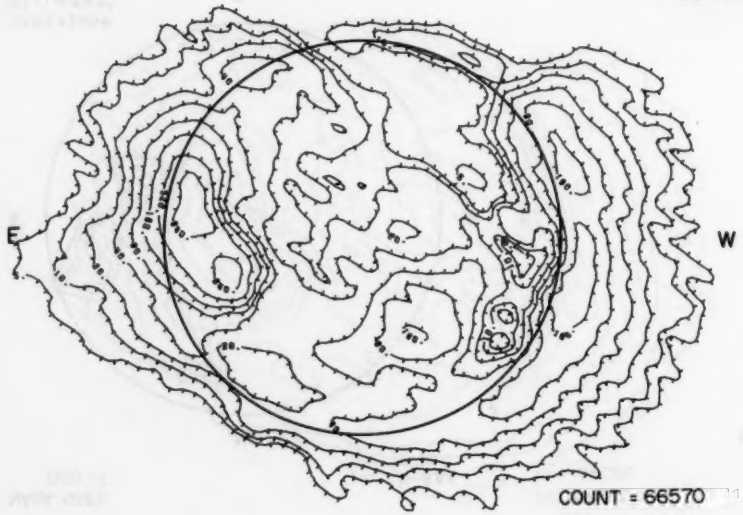
1954-2308 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



COUNT = 66570
ROLL = 35.8°
P-TH = -4.70

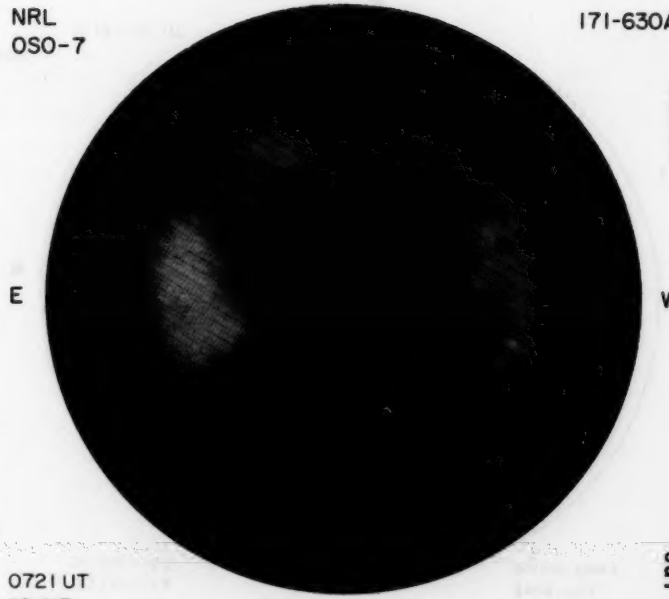
0724 UT

Sp

Np

NRL
OSO-7

171-630A



0721 UT
COUNT =

Sp

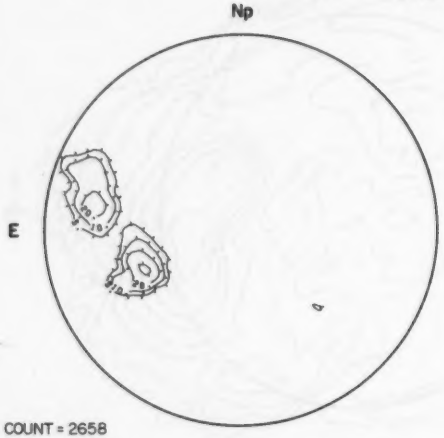
81
Jul 73

JULY 29, 1973 (P=9.57, B_o=5.58, L_o=322.02)

Jul 73 82

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2658
ROLL = 34.2°
P-TH = -4.62

0613 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

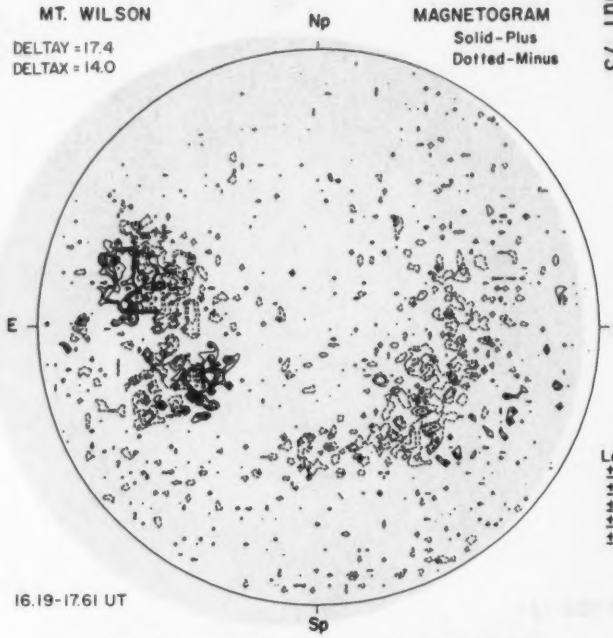
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

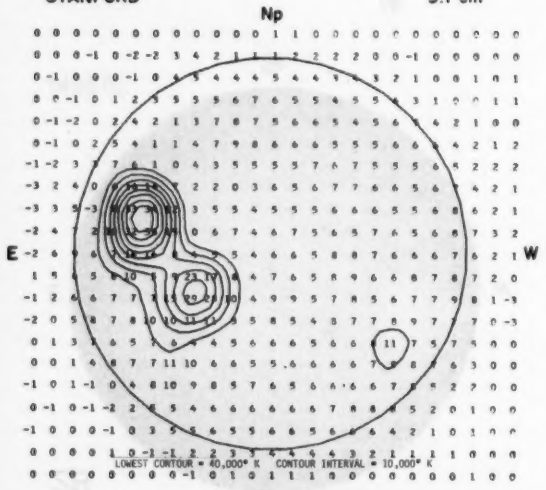


Levels
±5
±10
±20
±40
±80

16.19-17.61 UT

STANFORD

9.1 cm

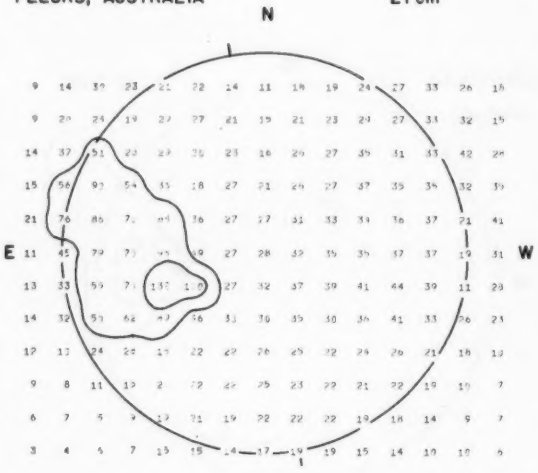


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

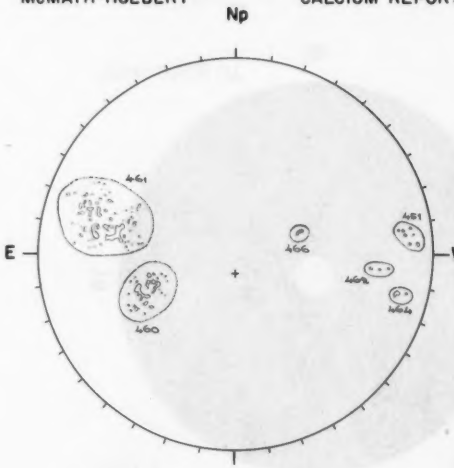


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1215 UT

BOULDER

Hα

BOULDER

SUNSPOTS

NRL

WHITE-LIGHT

20-21 UT
Brightness Unit 3,000° K

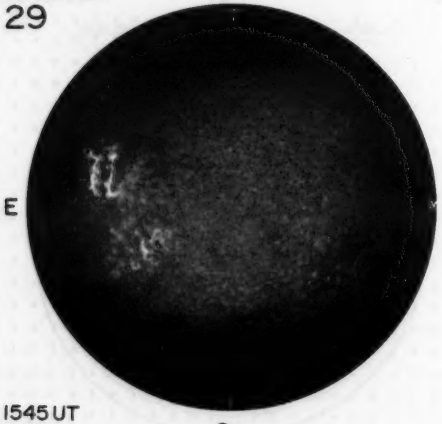
02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1215 UT

BOULDER
29

Np

Hα



E

W

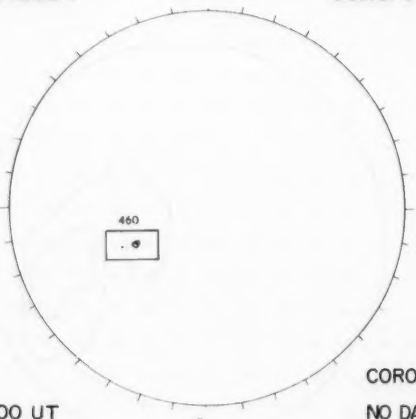
1545 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1700 UT

Sp

CORONA
NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

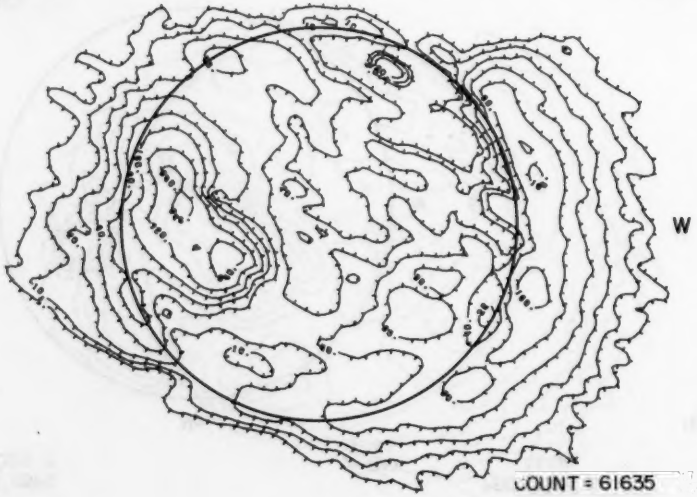
1818-2336 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 61635
ROLL = 34.2°
P-TH = -4.62

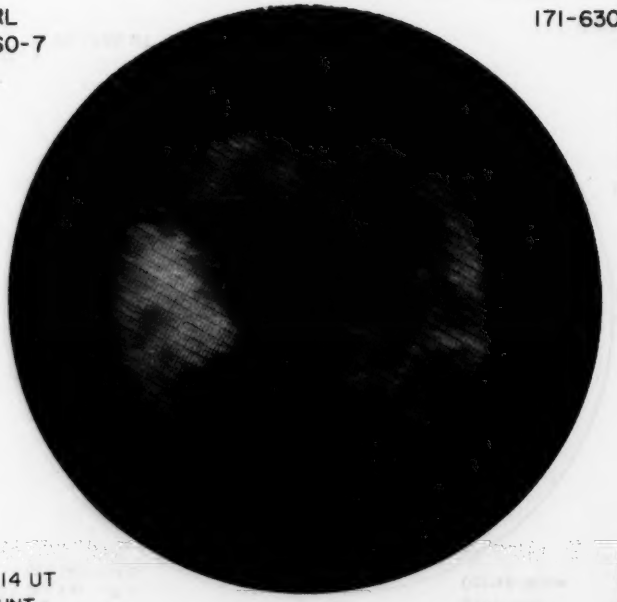
0613 UT

Sp

Np

NRL
OSO-7

171-630A



E

W

0614 UT
COUNT =

Sp

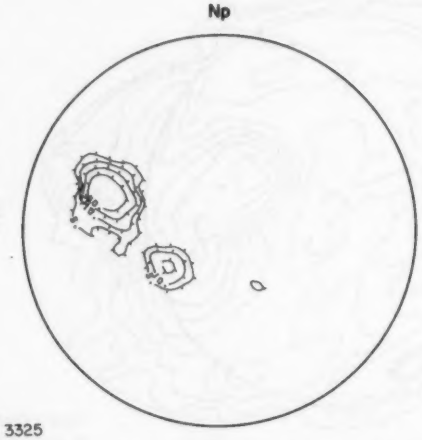
83
Jul 73

JULY 30, 1973 (P=9.98, B_o=5.65, L_o=308.80)

84 Jul 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3325
ROLL = 33.8°
P-TH = -4.52

0641 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

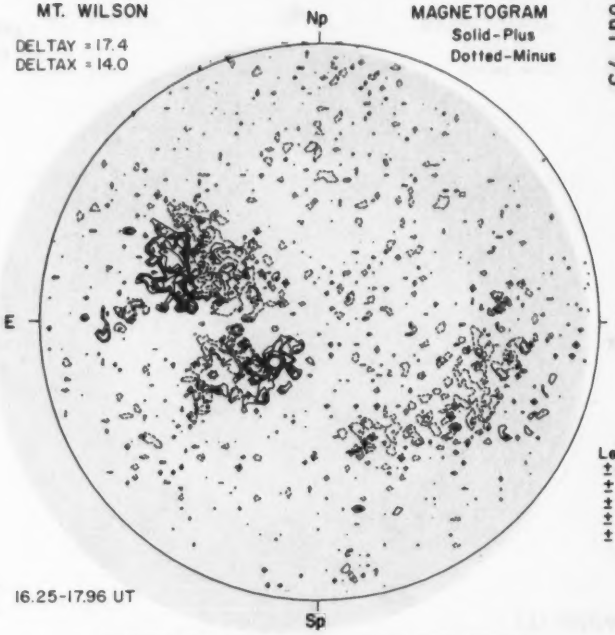
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

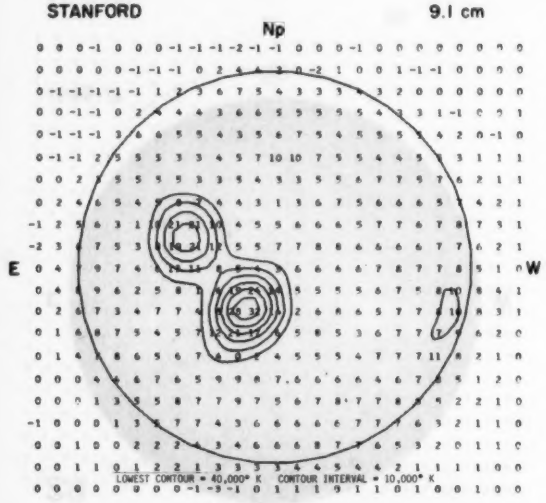


Levels
±5
±10
±20
±40
±80

16.25-17.96 UT

STANFORD

9.1 cm

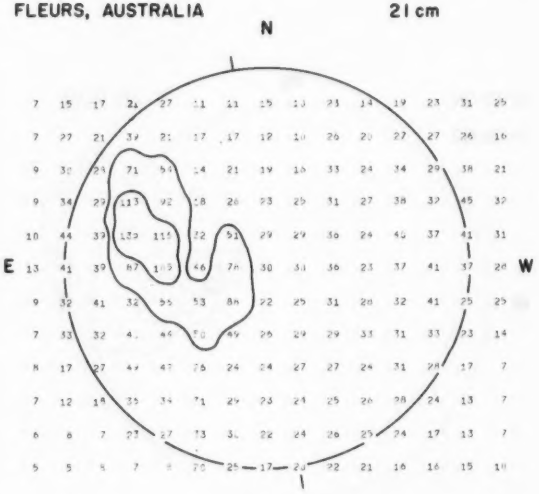


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

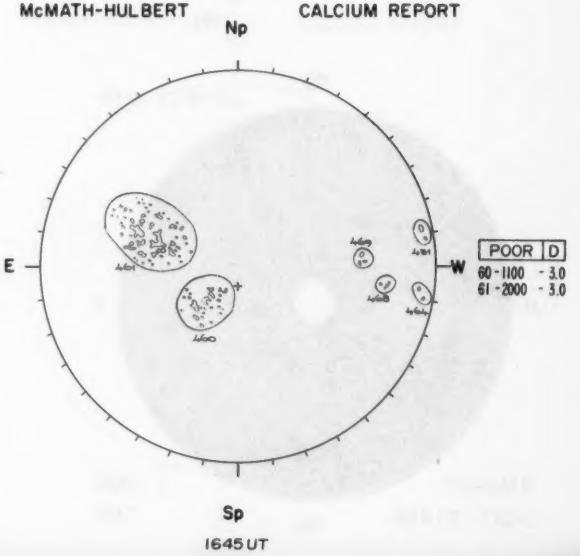


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT



1645 UT

BOULDER

Hα

BOULDER

SUNSPOTS

20-21 UT

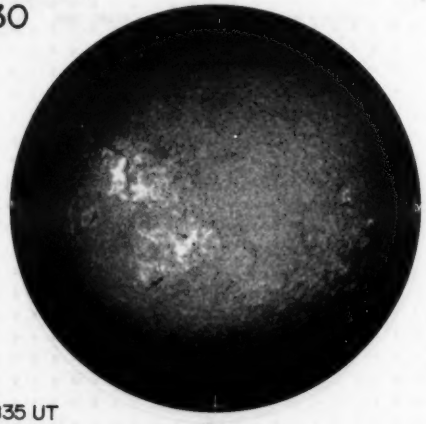
02-03 UT Brightness Unit 1,700° K

1645 UT

BOULDER
30

Np

Hα



E

W

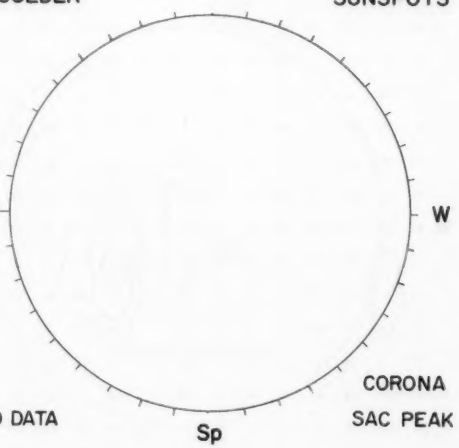
1835 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

NO DATA

Sp

CORONA

SAC PEAK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

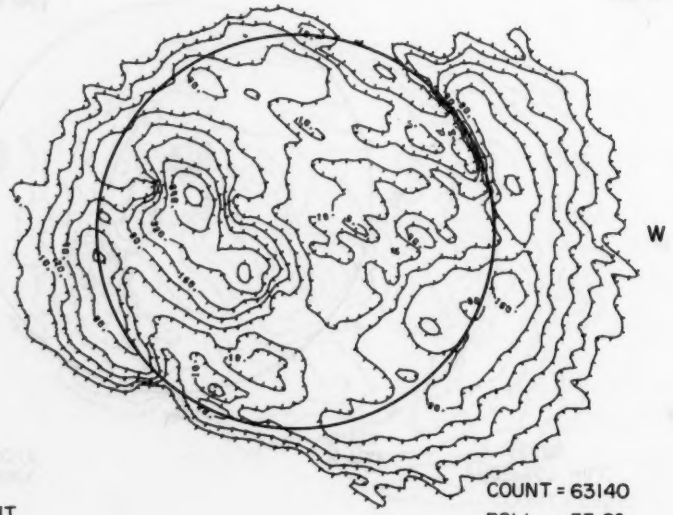
1916 - 0006 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 63140
ROLL = 33.8°
P-TH = -4.52

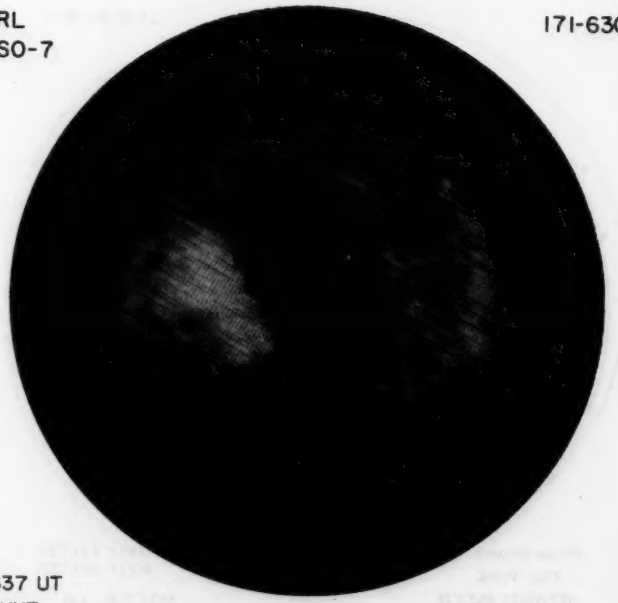
0641 UT

Sp

Np

NRL
OSO-7

171-630A



E

W

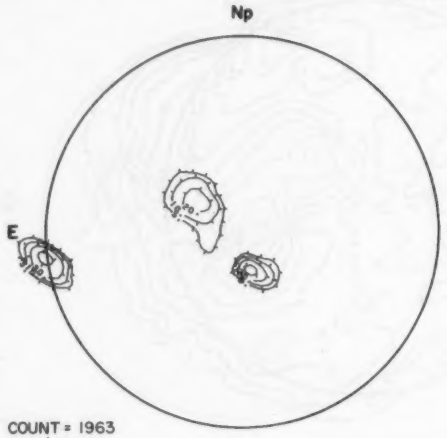
0637 UT
COUNT =

Sp

85
Jul 73

JULY 31, 1973 (P=10.38, B_o=5.73, L_o=295.57)

NASA GSFC
OSO-7
X-RAY
8-16A

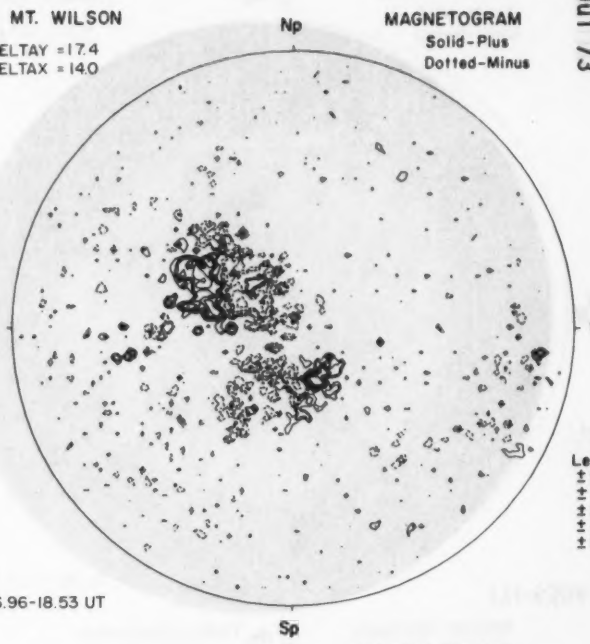


COUNT = 1963
ROLL = 33.3°
P-TH = -4.38
1628 UT
Counts per 0.125 sec.

PROSPECT HILL
AFCRL
8.6 mm

Contours in Intervals of 200° K

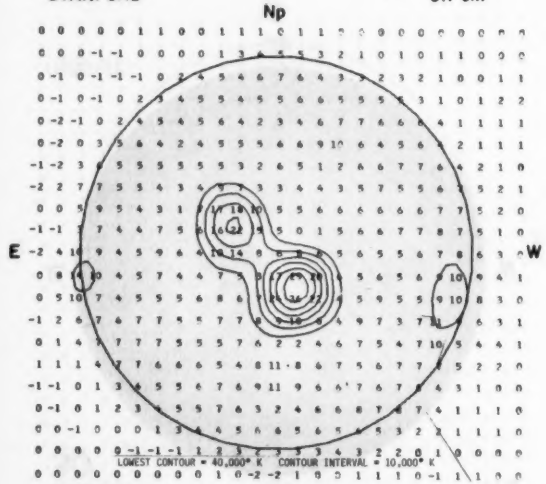
MT. WILSON
DELTAY = 17.4
DELTAX = 14.0
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

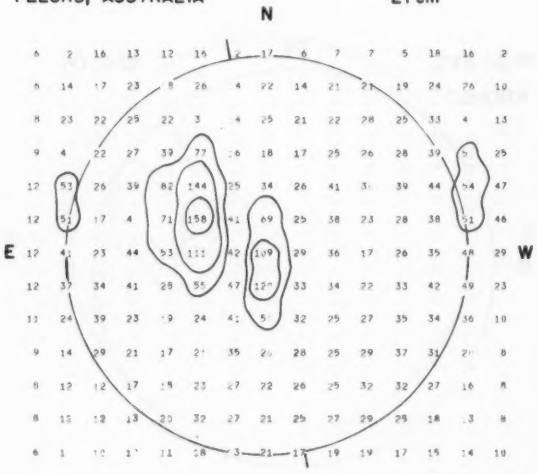
16.96-18.53 UT

STANFORD
9.1 cm



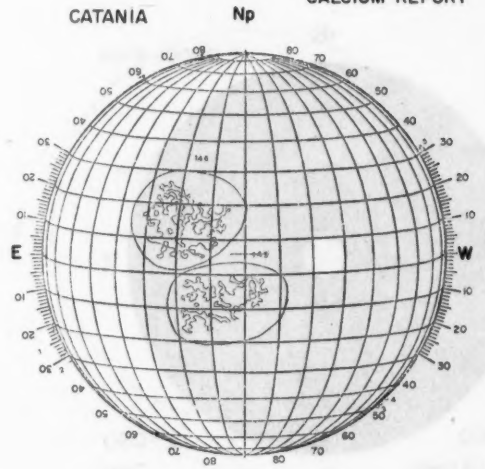
20-21 UT
Brightness Unit 5,000° K

FLEURS, AUSTRALIA
21 cm



02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CATANIA
CALCIUM REPORT



FAIR SS
45 - 5331 ---
46 - 8280 ---

0800 UT

BOULDER
H α

BOULDER

SUNSPOTS

WHITE-LIGHT

20-21 UT Brightness Unit 5,000° K

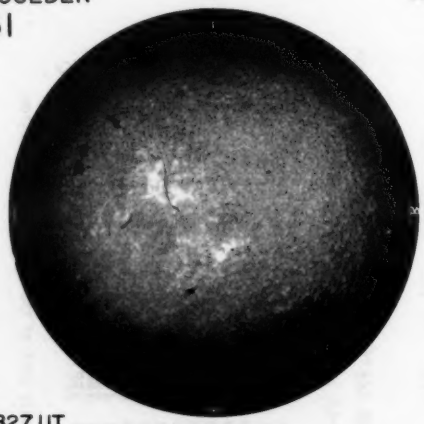
02-03 UT Resolution 3 Minutes of Arc Brightness Unit 1,700° K

0800 UT

BOULDER
31

Np

H α



E W

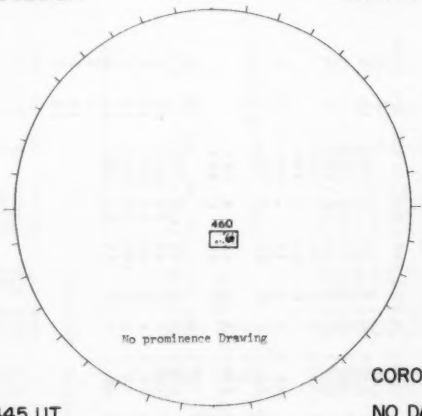
1827 UT

Sp

BOULDER

Np

SUNSPOTS



E W

CORONA
NO DATA

1445 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E W

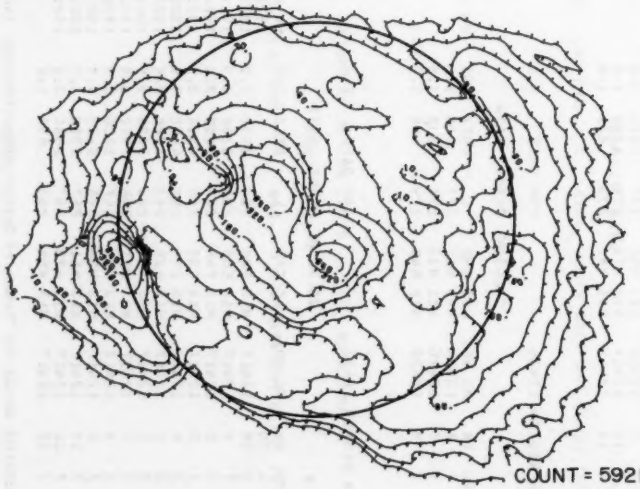
1811-2259 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E W

COUNT = 59213
ROLL = 33.3°
P-TH = -4.38

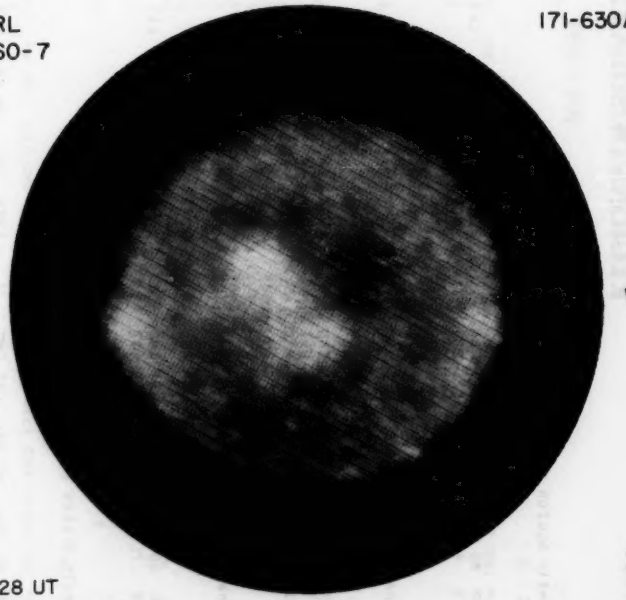
1628 UT

Sp

Np

NRL
OSO-7

171-630A



E W

1628 UT
COUNT = 326405

Sp

87
Jul 73

REGIONS OF SOLAR ACTIVITY

JULY 1973

MCMATH REGION 12416 CMP DATE 2.6

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	6	30	12416	S21 E25	314	100	1.5											

MCMATH REGION 12422 CMP DATE 3.2

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	4	12422	N10 W17	303	200	1.0											
73	7	5	12422	N10 W30	303	300	1.5											

MCMATH REGION 12418 CMP DATE 4.3

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	1	12418	S40 E37	289	200	2.0											

MCMATH REGION 12414 CMP DATE 5.1

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	6	28	12414	S08 E85	281	800	3.0	19218	S07 E70	293	B						7	2
73	6	29						19218	S07 E68	283	(BF)	4	B	30	7	DRO	11	3
73	6	30	12414	S07 E56	283	1400	2.5	19218	S07 E56	285	(BY)	3	G	40	6	CSO		
73	7	1	12414	S07 E47	279	1900	3.0	19218	S07 E38	282	(BF)	2	B	10	8	CRO	7	2
73	7							19220	S06 E41	279	(AP)	2	B	60	1	HSX		
73	7								S04 E47				B	10	1	AXX		
73	7	2	12414	S07 E34	278	1800	3.0	19218	S07 E29	281	(B)	2	B	10	4	BXO	10	3
73	7							19220	S07 E37	273	(A)	1	B	60	1	HSX		
73	7	3	12414	S07 E22	276	2000	3.0	19218	S08 E11	282	B)	2					11	3
73	7							19220	S06 E18	275	(BP)	3	C	40	4	CRO		
73	7								S07 E19				C	10	1	AXX		
73	7	4	12414	S06 E08	278	2000	3.0	19218	S08 E05	279	(AF)	1					13	4
73	7							19220	S06 E08	276	(BP)	2	C	40	8	BXI		
73	7	5	12414	S06 W06	279	1800	3.0	19220	S06 W06	273	(BF)	3	B	40	29	BXI	20	6
73	7	6	12414	S06 W19	279	1800	3.5	19220	S06 W22	276	(B)	3	B	60	22	DRI	17	5
73	7	7	12414	S06 W32	277	1600	3.0	19220	S05 W34	274	(B)	3	G	140	32	DAO	13	4
73	7	8	12414	S06 W45	278	1600	3.5	19220	S05 W44	275	(B)	2	B	60	26	DRI	11	3
73	7	9	12414	S06 W57	277	1900	3.0										12	3
73	7	10	12414	S06 W70	276	1200	2.5										10	3
73	7	11	12414	S06 W82	276	800	1.5										10	3

MCMATH REGION 12426 CMP DATE 5.2

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	6	12426	N00 W17	277	300	1.5											
73	7	7	12426	N01 W33	278	200	1.5											
73	7	8	12426	N01 W46	279	100	1.5											

MCMATH REGION 12417 CMP DATE 5.9 RETURN OF REGION 12375 & 12378* ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	6	29						19219	N12 E77	274	AP		B	360	1	HHX		
73	6	30	12417	N13 E70	269	3500	3.5	19219	N12 E66	275	(BP)	5	G	400	3	CHO	31	9
73	7	1	12417	N13 E60	266	3700	3.5	19219	N12 E51	269	(BP)	5	B	360	11	CKO	26	8
73	7	2	12417	N13 E46	266	4000	3.5	19219	N12 E41	269	(BY)	6	B	440	16	CKO	40	12
73	7	3	12417	N13 E32	266	4300	3.5	19219	N12 E23	270	(BP)	6	C	520	9	DHO	38	11
73	7	4	12417	N13 E18	268	4100	3.5	19219	N12 E15	269	(BP)	6	C	420	9	DHO	42	12
73	7	5	12417	N13 E05	268	3700	3.5	19219	N12 W01	268	(BP)	5	B	380	26	CKO	35	10
73	7	6	12417	N13 W08	268	3700	3.5	19219	N13 W16	270	(BP)	5	B	380	14	CHO	34	10
73	7	7	12417	N13 W21	266	3500	3.5	19219	N13 W29	269	(BP)	6	G	450	26	DKI	38	11
73	7	8	12417	N13 W34	267	3600	3.5	19219	N12 W38	269	(BP)	6	B	340	28	CHI	45	13
73	7	9	12417	N13 W46	266	3400	4.0	19219	N11 W53	271	(BP)	6	G	460	24	DKI	52	15
73	7	10	12417	N13 W61	267	3300	3.5	19219	N12 W68	271	(BP)	5	G	410	17	DKI	45	13
73	7	11	12417	N13 W73	267	2800	3.0	19219	N12 W81	269	(BP)	5	G	300	7	DAI	35	10
73	7	12	12417	N13 W88	263	600	1.0		N11 W87				G	80	1	HSX	14	4

*An asterisk beside the "Return of Region" number indicates that the new region is only part of the area of the old region.

REGIONS OF SOLAR ACTIVITY

JULY 1973

MCMATH REGION 12430 CMP DATE 6.4

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	7	8	12430	N01 W28	261	200	1.5										
73	7	9	12430	N01 W42	262	100	1.0										

MCMATH REGION 12427 CMP DATE 7.3

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	7	5						19221	N01 E18	249	(B)	2	B	0	4	BXO	
73	7	6	12427	N02 E11	249	600	4.0	19221	N02 E04	250	(BP)	4	B	30	16	CRO	9 3
73	7	7	12427	N02 W03	248	900	4.0	19221	N02 W09	249	(BP)	4	G	100	15	DAO	12 3
73	7	8	12427	N02 W16	249	1300	3.5	19221	N01 W18	249	(BF)	4	B	0	6	BXO	10 3
73	7	9	12427	N02 W29	249	1300	3.5	19221	N01 W31	249	(BF)	3	G	100	12	DCX	9 3
73	7	10	12427	N02 W43	249	1100	3.5	19221	N01 W46	249	(B)	2	G	30	5	CRO	
73	7	11	12427	N02 W55	249	1100	3.5										
73	7	12	12427	N02 W75	250	1100	3.5										
73	7	13	12427	N02 W87	254	800	2.5										4 1

MCMATH REGION 12420 CMP DATE 7.9 RETURN OF REGION 12377* ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	7	2	12420	N14 E68	244	300	1.0										
73	7	3	12420	N15 E56	242	300	1.0										
73	7	4	12420	N14 E43	243	200	1.0										
73	7	5	12420	N15 E31	242	300	1.0										
73	7	6	12420	N16 E18	242	300	1.0										5 1
73	7	7	12420	N15 E05	240	100	1.0										6 2

MCMATH REGION 12438 CMP DATE 8.1

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	7	10	12438	S13 W32	238	200	1.0										

MCMATH REGION 12423 CMP DATE 10.0 RETURN OF REGION 12380 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	7	4	12423	S18 E75	211	200	1.0										
73	7	5	12423	S18 E61	212	200	1.0										
73	7	6	12423	S18 E48	212	100	1.0										
73	7	7	12423	S18 E32	213	300	1.5										
73	7	8	12423	S17 E19	214	300	1.0										
73	7	9	12423	S17 E07	213	500	1.5										
73	7	10	12423	S17 W06	212	500	1.5										
73	7	11	12423	S17 W18	212	400	1.5										
73	7	12	12423	S18 W36	211	400	1.0										
73	7	13	12423	S17 W44	211	200	1.0										

MCMATH REGION 12424 CMP DATE 10.4 RETURN OF REGION 12379 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	7	4	12424	N15 E80	206	700	1.5										7 2
73	7	5	12424	N17 E65	208	1000	1.5										6 2
73	7	6	12424	N17 E52	208	900	1.5										
73	7	7	12424	N19 E36	209	1200	2.0										
73	7	8	12424	N19 E23	210	1000	2.0										7 2
73	7	9	12424	N20 E12	208	900	2.0										6 2
73	7	10	12424	N20 W02	208	900	2.0										6 2
73	7	11	12424	N20 W14	208	1000	2.0										5 2
73	7	12	12424	N20 W30	205	1000	2.0										
73	7	13	12424	N20 W40	207	1000	1.5										
73	7	14	12424	N20 W58	212	900	1.5										3 1
73	7	15	12424	N22 W68	209	500	1.0										
73	7	16	12424	N22 W80	208	200	1.0										

REGIONS OF SOLAR ACTIVITY

JULY 1973

MCMATH REGION 12436 CMP DATE 11.1

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	10	12436	N06 E07	199	200	1.5											
73	7	11	12436	N06 W05	199	300	1.5											

MCMATH REGION 12425 CMP DATE 11.3 RETURN OF REGION 12382 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	5	12425	S17 E79	194	500	1.5										5	1
73	7	6	12425	S17 E66	194	600	2.0											
73	7	7	12425	S17 E50	195	600	2.5											
73	7	8	12425	S17 E35	198	500	2.5											
73	7	9	12425	S17 E23	197	500	2.0											
73	7	10	12425	S17 E10	196	500	2.0											
73	7	11	12425	S17 W02	196	500	1.5	19222	S11 W08	196	(B)	2						
73	7	12	12425	S17 W20	195	300	1.0											

MCMATH REGION 12439 CMP DATE 11.5

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	12	12439	S11 W19	194	300	2.5		S12 W15				G	0	1	AXX		
73	7	13	12439	S10 W29	196	300	2.0											
73	7	14	12439	S10 W42	196	200	2.0											
73	7	15	12439	S10 W56	197	200	1.0		S11 W52				B	0	1	AXX		
73	7	16	12439	S08 W70	198	100	1.0											

MCMATH REGION 12441 CMP DATE 11.9

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	13	12441	S11 W21	188	300	2.5	19224	S10 W26	189	(B)	2					3	1
73	7	14	12441	S10 W35	189	300	2.5	19224	S10 W37	189	(B)	3	G	20	4	CRO		
73	7	15	12441	S10 W48	189	500	3.0	19224	S10 W50	189	(BP)	2	B	10	5	BXO	3	1
73	7	16	12441	S10 W61	189	800	3.0	19224	S11 W65	191	(BP)	3	B	20	2	BXO	6	2
73	7	17	12441	S10 W78	192	800	3.5	19224	S11 W79	187	BP		B	20	2	BXO	8	2
73	7	18	12441	S10 W88	188	300	1.0										5	2

MCMATH REGION 12434 CMP DATE 12.0

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	9	12434	S13 E33	187	200	1.5											

MCMATH REGION 12429 CMP DATE 12.2

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	7	12429	S12 E60	185	200	1.5											
73	7	8	12429	S10 E46	187	100	1.5											
73	7	9	12429	S10 E35	185	100	1.0											

MCMATH REGION 12428 CMP DATE 13.1 RETURN OF REGION 12401 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	6	12428	S19 E88	172	300	1.0										5	1
73	7	7	12428	S20 E70	175	300	1.0										3	1
73	7	8	12428	S19 E57	176	300	2.0											
73	7	9	12428	S19 E44	176	400	2.0											
73	7	10	12428	S19 E30	176	300	2.0											
73	7	11	12428	S19 E18	176	500	2.0											
73	7	12	12428	S19 E02	173	300	1.5											
73	7	13	12428	S19 W08	175	300	1.5											

REGIONS OF SOLAR ACTIVITY

JULY 1973

MCMATH REGION 12446 CMP DATE 13.3

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	17	12446	S42 W56	170	200	1.5											
73	7	18	12446	S42 W66	166	200	1.0											

MCMATH REGION 12432 CMP DATE 13.5

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	8	12432	S02 E67	166	100	1.0											
73	7	9	12432	S02 E54	166	100	1.0											
73	7	10	12432	S02 E40	166	100	1.0											
73	7	11	12432	S04 E27	167	300	1.0											

MCMATH REGION 12431 CMP DATE 14.3 RETURN OF REGION 12387 ROTATION 6

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	8	12431	N11 E72	161	800	1.0											
73	7	9	12431	N11 E59	161	900	1.5											
73	7	10	12431	N12 E47	159	1100	1.5											
73	7	11	12431	N12 E35	159	1300	2.0											
73	7	12	12431	N12 E18	157	1400	2.5	19223	N12 E23	155	(AP)	2						
73	7	13	12431	N12 E10	157	1400	2.5		N12 E18				C	0	2	BXO		
73	7	14	12431	N12 W02	156	1200	2.5	19223	N13 W02	154	(AP)	1	G	10	1	AXX		
73	7								N14 E01				G	10	2	BXC		
73	7	15	12431	N12 W14	155	1500	2.5											
73	7	16	12431	N12 W26	154	1500	2.0											
73	7	17	12431	N14 W39	153	1500	2.5	19223	N14 W44	152	(AP)	2						
73	7	18	12431	N14 W53	153	1000	3.0	19223	N13 W53	152	(B)	3	G	40	2	CSO	7	2
73	7	19						19223	N14 W66	153	(B)	2	M	80	5	DRO	6	2
73	7	20						19223	N14 W79	153	BP		G	20	2	BXO	4	1

MCMATH REGION 12433 CMP DATE 14.4

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	8	12433	S07 E85	148	400	1.0											
73	7	9	12433	S07 E70	150	300	2.0											
73	7	10	12433	S07 E54	152	300	2.0											
73	7	11	12433	S07 E41	153	500	2.5											
73	7	12	12433	S09 E23	152	300	2.5											
73	7	13	12433	S09 E12	155	200	2.0											
73	7	14	12433	S09 W02	156	200	2.0											
73	7	15	12433	S09 W13	154	300	1.5											
73	7	16	12433	S08 W25	153	300	1.0											

MCMATH REGION 12445 CMP DATE 15.0

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	ARFA	CNT	CLASS	INT	FLUX
73	7	17	12445	S10 W33	147	500	3.0	19226	S11 W38	146	(BF)	2	B	10	6	BXO		
73	7	18	12445	S11 W47	147	600	3.0	19226	S10 W48	147	(BP	3	G	20	4	BXO		

MCMATH REGION 12435 CMP DATE 15.3

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	9	12435	S12 E80	140	200	1.0											
73	7	10	12435	S12 E64	142	200	1.0											
73	7	11	12435	S12 E50	144	200	1.0											

The new column marked STA is inserted to indicate the source of data for sunspot area, count and classification.
B = Boulder C = Carnarvon G = Gran Canaria (Canary Islands) M = Manila

REGIONS OF SOLAR ACTIVITY

JULY 1973

MCMATH REGION 12437 CMP DATE 16.0 RETURN OF REGION 12390 ROTATION 2

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	10	12437	S10 E72	134	400	1.0										3	1
73	7	11	12437	S11 E60	134	600	1.0										3	1
73	7	12	12437	S11 E45	130	600	1.5											
73	7	13	12437	S11 E33	134	600	1.0											
73	7	14	12437	S11 E19	135	600	1.0											
73	7	15	12437	S11 E07	134	600	1.0											
73	7	16	12437	S11 W05	133	500	1.0											

MCMATH REGION 12447 CMP DATE 17.0

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	17	12447	N31 W06	120	100	2.0											

MCMATH REGION 12448 CMP DATE 18.0

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	15						19225	S07 E32	107	(BP)	2						
73	7	17	12448	S05 E06	108	300	3.0	19225	S06 E02	106	(BP)	3	B	10	7	BXO	6	2
73	7	18	12448	S05 W09	109	700	3.5	19225	S06 W11	110	(B)	2	G	70	9	DAO	5	1
73	7	19						19225	S06 W25	112	(AP)	2	H	10	1	AXX	4	1
73	7	20															3	1
73	7	21						19225	S06 W49	110	(BP)	4	C	30	3	DRO	6	2
73	7	22						19225	S06 W66	113	(AP)	3	B	10	1	AXX	5	1
73	7	23	12448	S05 W78	110	400	2.0										3	1

MCMATH REGION 12440 CMP DATE 18.1 RETURN OF REGION 12394 ROTATION 5

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	12	12440	S10 E76	99	1000	1.5										3	1
73	7	13	12440	S10 E62	105	1200	1.5										4	1
73	7	14	12440	S09 E48	106	900	1.5											
73	7	15	12440	S09 E34	107	1100	2.5										3	1
73	7	16	12440	S09 E21	107	1000	2.0										2	1

MCMATH REGION 12442 CMP DATE 20.7 RETURN OF REGION 12397 ROTATION 2

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	14	12442	S10 E90	64	500	1.0										3	1
73	7	15	12442	S10 E75	66	600	1.0										4	1
73	7	16	12442	S10 E61	67	600	1.5											
73	7	17	12442	S09 E46	68	700	1.5											
73	7	18	12442	S08 E30	70	700	2.0											
73	7	23	12442	S06 W40	72	300	2.0											
73	7	24	12442	S06 W50	70	200	2.0											
73	7	25	12442	S07 W67	72	200	1.5										4	1

MCMATH REGION 12449 CMP DATE 21.5

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	17	12449	N17 E54	60	300	1.5	19227	N18 E51	57	(AP)	2						
73	7	18	12449	N18 E42	58	400	2.5	19227	N17 E40	59	(B)	2	G	20	7	DRO		
73	7	19						19227	N18 E30	57	(AF)	3	H	20	4	BXO		
73	7	20							N18 E32				G	10	2	BXO		
73	7	22						19227	N18 W14	61	(AP)	3	B	0	4	BXO		
73	7	23	12449	N18 W30	62	200	2.0											
73	7	24	12449	N18 W42	62	200	2.0											
73	7	25	12449	N18 W56	63	200	1.5											

REGIONS OF SOLAR ACTIVITY

JULY 1973

MCMATH REGION 12454 CMP DATE 21.6

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	24	12454	S19 W40	60	100	2.0											
73	7	25	12454	S19 W55	60	100	1.5											

MCMATH REGION 12443 CMP DATE 22.0 RETURN OF REGION 12398 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	16	12443	S03 E76	52	500	1.0										3	1
73	7	17	12443	S04 E60	54	500	1.0											
73	7	18	12443	S04 E44	56	500	1.5											
73	7	23	12443	S03 W23	55	200	1.0	19228	S03 W10	44	(AP)	1						
73	7	24	12443	S03 W34	54	200	1.0											

MCMATH REGION 12450 CMP DATE 22.5

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	23	12450	N04 W17	49	100	1.5											
73	7	24	12450	N04 W30	50	200	1.0											
73	7	25	12450	N04 W45	50	100	1.0											

MCMATH REGION 12456 CMP DATE 22.7

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	25	12456	S27 W41	46	100	1.5											

MCMATH REGION 12444 CMP DATE 22.9 RETURN OF REGION 12402 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	17	12444	S14 E69	45	600	1.0											
73	7	18	12444	S16 E56	44	600	2.0										3	1
73	7	22															2	1
73	7	23	12444	S15 W11	43	700	2.0											
73	7	24	12444	S15 W22	42	700	2.0											
73	7	25	12444	S15 W37	42	500	2.0											
73	7	26	12444	S15 W50	42	400	2.0										3	1
73	7	27	12444	S15 W62	44	300	1.5											
73	7	28	12444	S15 W71	40	200	1.0											

MCMATH REGION 12455 CMP DATE 23.8

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	24	12455	N10 W11	31	100	1.5											
73	7	25	12455	N09 W26	31	100	2.0		N10 W26			G		10	2	BXO		
73	7	26	12455	N09 W40	32	100	1.5											
73	7	27	12455	N09 W51	33	100	1.0											

MCMATH REGION 12457 CMP DATE 24.9

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	25	12457	N17 W12	17	100	1.5											

REGIONS OF SOLAR ACTIVITY

JULY 1973

MCMATH REGION 12451 CMP DATE 25.0

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	23	12451	N10 E18	14	100	1.5										3	1
73	7	24	12451	N10 E05	15	200	2.5	19229	N10 E05	16	(B)	4	B	10	5	BXO	6	2
73	7	25	12451	N09 W11	16	300	2.5	19229	N10 W09	17	B							
73	7	26	12451	N09 W24	16	300	2.5											
73	7	27	12451	N09 W35	17	200	2.0											
73	7	28	12451	N09 W48	17	100	1.0											
73	7	29	12451	N08 W62	19	300	1.0											
73	7	30	12451	N10 W75	16	200	1.0											

MCMATH REGION 12464 CMP DATE 25.0

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	29	12464	S08 W60	17	300	2.0											
73	7	30	12464	S07 W70	11	200	1.5											

MCMATH REGION 12459 CMP DATE 25.2

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	25	12459	N30 W07	12	100	1.5											

MCMATH REGION 12462 CMP DATE 25.9

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	28	12462	S01 W35	4	100	1.5											
73	7	29	12462	N00 W47	4	100	1.0											

MCMATH REGION 12468 CMP DATE 27.1

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	30	12468	S02 W48	349	200	2.0											

MCMATH REGION 12469 CMP DATE 27.7

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	30	12469	N07 W39	340	300	1.5											

MCMATH REGION 12470 CMP DATE 27.9

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	8	02	12470	S10 W76	337	200	1.0											

MCMATH REGION 12466 CMP DATE 28.0

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	29	12466	N13 W20	337	200	1.5											

MCMATH REGION 12463 CMP DATE 29.3

				CALCIUM PLAGE DATA				SUNSPOT DATA										9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	28	12463	S12 E09	320	100	1.5											

REGIONS OF SOLAR ACTIVITY

JULY 1973

MCMATH REGION 12460 CMP DATE 31.5 RETURN OF REGION 12414 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA									9.1 CM	
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT	FLUX
73	7	25	12460	S05	E83	283	1500	2.5	19230	S05	E75	294	BP		G	60	1	HSX	7	2
73	7	26	12460	S06	E67	286	1700	3.5	19230	S05	E62	293	(AP)	4	B	120	2	HAX	10	3
73	7	27	12460	S07	E55	287	1400	3.5	19230	S05	E49	293	(AP)	5					11	11
73	7	28	12460	S06	E41	288	1200	3.5	19230	S05	E33	293	(AP)	4	B	90	5	HAX	14	4
73	7	29	12460	S06	E26	291	1200	3.0	19230	S05	E25	290	(BP)	5	B	100	5	CAO	13	4
73	7	30	12460	S06	E10	291	1100	3.0	19230	S05	E11	291	(BP)	5	G	110	5	HAX	16	5
73	7	31							19230	S05	W07	291	(BP)	4	G	110	30	CAI		
73	8	1	12460						19230	S05	W16	289	(BP)	5						
73	8	2	12460	S06	W28	288	1200	3.0	19230	S05	W36	291	(AP)	4	B	70	7	CAO	9	3
73	8	3	12460	S06	W41	289	1000	3.0	19230	S05	W43	289	(BP)	4	G	90	3	CAO	5	2
73	8	4	12460	S06	W57	291	1000	3.0	19230	S04	W62	293	AP		B	40	2	HSX	7	2
73	8	5	12460	S06	W69	291	900	2.5	19230	S04	W75	293	(AP)	2	B	10	1	AXX	8	2
73	8	6	12460	S06	W81	289	600	1.5											7	2

Note: Region 10431 has a resurgence on July 18.
Region 10448 forms in midst of old 10440.
No calcium spectroheliograms were obtained at the McMath-Hulbert Observatory on July 19, 20, 21, 22 and 31.

DAILY CALCIUM PLAGE INDEX

JULY 1973

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
73	7	1	14.1	73	7	11	12.5	73	7	21	*
73	7	2	16.7	73	7	12	9.0	73	7	22	*
73	7	3	20.1	73	7	13	7.9	73	7	23	2.7
73	7	4	21.4	73	7	14	6.3	73	7	24	2.9
73	7	5	20.2	73	7	15	8.2	73	7	25	2.8
73	7	6	23.1	73	7	16	6.9	73	7	26	4.2
73	7	7	22.4	73	7	17	7.1	73	7	27	4.6
73	7	8	22.3	73	7	18	8.4	73	7	28	6.0
73	7	9	21.0	73	7	19	*	73	7	29	7.5
73	7	10	14.9	73	7	20	*	73	7	30	9.1
								73	7	31	*

* NO OBSERVATIONS AT MCMATH-HULBERT

SOLAR X-RAYS MEASURED BY SATELLITE
SOLRAD 9 – EXPLORER 37

JULY 1973

NAVAL RESEARCH LABORATORY 1 - 8A HOURLY AVERAGES (10^{-3} ergs/cm^2/sec)

DAY	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0.26	0.19	0.16	0.34	0.23	0.20	0.17	0.33	0.24	0.16	0.30	0.15	0.21	0.20	0.16	0.14	0.15	0.19	0.16	0.15	0.18	0.17	0.13	0.15
2	0.14	0.14	0.12	0.14	0.20	0.12	0.15	0.23	0.14	0.23	0.11	0.30	0.19	0.30	0.73	0.40	0.23	0.17	0.15	0.15	0.13	0.25	0.18	0.16
3	0.19	0.25	0.20	0.25	0.19	0.19	0.15	0.18	0.20	0.16	0.23	0.26	0.14	0.12	0.12	0.15	0.15	0.15	0.12	0.16	0.15	0.16	0.15	0.15
4	0.29	0.21	1.49	0.34	0.23	0.13	0.15	0.20	0.28	0.16	0.33	0.16	0.16	0.14	0.14	0.16	0.16	0.23	0.17	0.25	0.16	0.16	0.16	0.17
5	0.22	0.29	0.26	0.22	0.17	0.18	0.20	0.25	0.18	0.43	0.21	0.29	0.25	0.19	0.19	0.14	0.13	0.15	0.14	0.30	0.16	0.16	0.20	0.16
6	0.19	0.17	0.14	0.17	0.34	0.15	0.23	0.35	0.29	0.23	0.18	0.19	0.30	0.22	0.38	0.12	0.14	0.16	0.14	0.18	0.17	0.19	0.15	0.16
7	0.14	0.14	0.16	0.15	0.40	0.27	0.21	0.18	0.70	0.22	0.19	0.16	0.53	0.27	0.18	0.23	0.61	0.17	0.22	0.20	0.32	0.30	0.24	0.21
8	0.67	0.17	0.34	0.52	1.96	0.27	0.15	0.46	1.92	0.29	0.20	0.31	0.59	0.22	0.19	1.54	0.54	0.39	0.34	2.28	1.19	0.90	0.90	2.06
9	3.33	0.84	0.47	0.43	1.10	4.46	1.09	0.50	1.60	0.91	0.56	0.28	0.43	0.35	0.31	0.24	2.77	1.50	0.36	0.26	0.54	0.80	0.55	0.48
10	0.49	0.41	1.43	0.50	0.40	0.32	0.26	2.59	0.59	0.27	0.23	0.34	0.17	0.63	0.54	0.21	0.32	0.45	0.29	0.28	0.23	0.23	0.24	0.38
11	0.23	0.20	0.23	0.21	0.18	0.27	0.65	0.34	0.19	0.21	0.13	0.22	0.18	0.25	0.28	0.27	0.25	0.24	0.21	0.17	0.67	0.16	0.20	0.36
12	0.26	0.37	0.42	0.17	0.20	0.17	0.22	0.46	0.25	0.21	0.15	0.44	0.15	0.24	0.20	0.26	0.18	0.14	0.18	0.19	0.20	0.18	0.17	0.17
13	0.15	0.18	0.19	0.16	0.16	0.21	0.31	0.17	0.25	0.16	0.17	0.17	0.15	0.87	0.16	0.14	0.15	0.16	0.15	0.15	0.14	0.29	0.11	0.14
14	0.14	0.15	0.14	0.13	0.14	0.26	0.13	0.22	0.16	0.09	0.13	0.12	0.13	0.15	0.14	0.13	0.12	0.13	0.12	0.12	0.12	0.11	0.18	0.11
15	0.17	0.15	0.16	0.10	0.17	0.12	0.16	0.23	0.13	0.23	0.14	0.13	0.11	0.14	0.13	0.12	0.12	0.12	0.11	0.10	0.12	0.12	0.11	0.14
16	0.12	0.13	0.13	0.16	0.19	0.16	0.30	0.13	0.17	0.10	0.12	0.11	0.12	0.18	0.14	0.15	0.16	0.16	0.15	0.10	0.13	0.11	0.14	0.12
17	0.12	0.11	0.14	0.12	0.18	0.17	0.17	0.13	0.14	0.15	0.12	0.12	0.14	0.13	0.13	0.12	0.17	0.15	0.15	0.16	0.12	0.15	0.12	0.13
18	0.15	0.30	0.30	0.22	0.20	0.16	0.19	0.15	0.15	0.12	0.15	0.14	0.21	0.12	0.14	0.15	0.14	0.19	0.15	0.17	0.16	0.38	0.20	0.20
19	0.19	0.15	0.16	0.16	0.20	0.21	0.16	0.17	0.28	0.15	0.26	0.32	0.29	0.36	0.52	0.15	0.17	0.14	0.15	0.13	0.16	0.12	0.11	0.14
20	0.13	0.12	0.18	0.25	0.12	0.20	0.32	0.12	0.09	0.12	0.26	0.19	0.12	0.13	0.15	0.13	0.15	0.13	0.57	0.35	0.15	0.14	0.14	0.16
21	0.12	0.21	0.17	0.15	0.20	0.17	0.13	0.09	0.25	0.15	0.11	0.12	0.17	0.17	0.12	0.12	0.14	0.16	0.13	0.15	0.13	0.14	0.13	0.24
22	0.17	0.14	0.13	0.19	0.11	0.17	0.13	0.13	0.11	0.11	0.16	0.15	0.13	0.13	0.10	0.14	0.14	0.09	0.15	0.13	0.11	0.12	0.17	0.14
23	0.13	0.16	0.12	0.38	0.10	0.14	0.15	0.11	0.11	0.12	0.14	0.17	0.26	0.18	0.33	1.12	1.94	1.89	1.38	1.11	0.79	0.61	0.58	0.43
24	0.39	0.41	0.31	0.26	0.26	0.20	0.23	0.20	0.20	0.23	0.16	0.18	0.18	0.16	0.15	0.15	0.15	0.18	0.21	0.18	0.19	0.19	0.19	0.17
25	0.16	0.17	0.15	0.17	0.26	0.21	0.20	0.14	0.17	0.20	0.18	0.14	0.16	0.19	0.17	0.12	0.15	0.17	0.20	0.14	0.18	0.15	0.13	0.19
26	0.15	0.17	0.15	0.16	0.18	0.15	0.14	0.14	0.19	0.18	0.22	0.21	0.16	0.14	0.16	0.16	0.14	0.15	0.19	0.13	0.16	0.15	0.19	0.16
27	0.19	0.24	0.20	0.20	0.16	0.14	0.21	0.41	0.30	0.27	1.04	0.61	0.23	0.15	0.45	0.20	0.15	0.15	0.12	0.13	0.13	0.17	0.12	0.17
28	0.13	0.17	0.22	0.22	0.15	0.14	0.15	0.12	0.14	0.20	0.15	0.13	0.13	0.14	0.14	0.14	0.13	0.17	0.14	0.15	0.12	0.15	0.14	0.13
29	0.18	0.11	0.17	0.12	0.47	0.29	0.13	0.17	0.13	0.14	0.15	0.15	0.14	50.9	36.7	7.43	3.50	2.69	1.77	1.40	1.12	0.89	0.91	0.68
30	0.58	0.56	0.45	0.44	0.34	0.32	0.29	0.26	0.26	0.21	0.22	0.19	0.19	0.22	0.19	0.17	0.19	0.17	0.18	0.16	0.14	0.13	0.16	0.18
31	0.12	0.15	0.17	0.15	0.18	0.17	0.15	0.15	0.15	0.30	0.17	0.16	0.15	0.17	0.14	0.15	0.14	0.12	0.19	0.16	0.15	0.15	0.19	0.17

SOLAR X-RAYS MEASURED BY SATELLITE
SOLRAD 9 - EXPLORER 37

JULY 1973

NAVAL RESEARCH LABORATORY 8 - 20A HOURLY AVERAGES (10^{-2} ergs/cm^2/sec)

DAY	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0.34	0.32	0.30	0.29	0.37	0.28	0.31	0.35	0.28	0.28	0.24	0.28	0.25	0.26	0.28	0.25	0.25	0.24	0.22	0.24	0.23	0.22	0.23	0.22
2	0.23	0.22	0.22	0.24	0.25	0.24	0.23	0.22	0.22	0.23	0.22	0.22	0.22	0.35	0.79	0.60	0.43	0.31	0.29	0.26	0.23	0.29	0.24	0.26
3	0.26	0.30	0.30	0.31	0.28	0.32	0.29	0.27	0.24	0.21	0.21	0.24	0.20	0.22	0.21	0.22	0.23	0.22	0.21	0.21	0.21	0.22	0.22	0.24
4	0.41	0.34	1.11	0.39	0.31	0.25	0.24	0.23	0.25	0.23	0.23	0.21	0.24	0.22	0.24	0.23	0.24	0.28	0.25	0.27	0.24	0.24	0.25	0.30
5	0.33	0.38	0.36	0.33	0.27	0.28	0.28	0.26	0.28	0.43	0.31	0.32	0.27	0.29	0.33	0.28	0.26	0.25	0.24	0.29	0.28	0.28	0.31	0.27
6	0.28	0.29	0.25	0.28	0.35	0.28	0.35	0.35	0.37	0.25	0.24	0.26	0.32	0.28	0.32	0.24	0.24	0.24	0.24	0.26	0.28	0.27	0.27	0.25
7	0.28	0.25	0.28	0.27	0.43	0.43	0.37	0.33	0.53	0.36	0.33	0.31	0.50	0.36	0.35	0.40	0.49	0.34	0.36	0.34	0.40	0.42	0.37	0.37
8	0.46	0.30	0.50	0.57	0.33	0.38	0.28	0.51	1.17	0.45	0.39	0.37	0.68	0.42	0.36	1.11	0.67	0.53	0.54	1.48	1.06	0.89	0.79	1.31
9	2.09	0.99	0.72	0.59	0.86	2.50	1.05	0.59	1.19	0.82	0.69	0.54	0.62	0.57	0.47	0.44	1.33	1.14	0.60	0.44	0.58	0.74	0.65	0.61
10	0.59	0.56	0.94	0.68	0.57	0.50	0.56	1.38	0.67	0.48	0.43	0.45	0.38	0.55	0.60	0.41	0.51	0.57	0.51	0.47	0.40	0.40	0.40	0.55
11	0.43	0.33	0.35	0.33	0.35	0.33	0.55	0.43	0.36	0.36	0.34	0.34	0.36	0.36	0.42	0.46	0.42	0.37	0.36	0.36	0.65	0.39	0.35	0.51
12	0.46	0.47	0.57	0.33	0.30	0.31	0.34	0.51	0.47	0.37	0.35	0.53	0.35	0.40	0.35	0.37	0.34	0.31	0.32	0.33	0.33	0.34	0.32	0.31
13	0.28	0.29	0.30	0.28	0.28	0.30	0.33	0.25	0.26	0.24	0.25	0.21	0.23	0.22	0.22	0.22	0.22	0.21	0.23	0.20	0.19	0.20	0.18	0.19
14	0.19	0.19	0.16	0.16	0.16	0.14	0.15	0.14	0.12	0.12	0.10	0.13	0.12	0.12	0.12	0.11	0.12	0.12	0.10	0.11	0.11	0.11	0.11	0.12
15	0.11	0.10	0.11	0.11	0.11	0.10	0.11	0.10	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.10	0.10	0.10	0.11
16	0.11	0.12	0.11	0.11	0.12	0.13	0.12	0.12	0.11	0.11	0.11	0.09	0.10	0.09	0.10	0.11	0.10	0.10	0.10	0.12	0.11	0.10	0.10	0.12
17	0.12	0.11	0.12	0.12	0.13	0.13	0.13	0.15	0.14	0.19	0.17	0.17	0.20	0.20	0.19	0.15	0.16	0.16	0.16	0.17	0.17	0.18	0.18	0.20
18	0.19	0.36	0.29	0.29	0.25	0.27	0.26	0.29	0.23	0.24	0.21	0.21	0.19	0.21	0.21	0.22	0.24	0.23	0.25	0.26	0.26	0.41	0.30	0.29
19	0.26	0.29	0.25	0.24	0.25	0.29	0.28	0.29	0.38	0.28	0.33	0.42	0.39	0.35	0.39	0.26	0.25	0.24	0.24	0.19	0.20	0.17	0.19	0.15
20	0.18	0.15	0.16	0.25	0.17	0.15	0.13	0.15	0.15	0.14	0.25	0.24	0.15	0.13	0.15	0.14	0.14	0.15	0.40	0.39	0.14	0.15	0.17	0.19
21	0.22	0.26	0.25	0.24	0.20	0.16	0.17	0.18	0.22	0.15	0.14	0.15	0.16	0.19	0.15	0.15	0.15	0.13	0.13	0.13	0.12	0.13	0.12	0.11
22	0.12	0.12	0.11	0.12	0.11	0.11	0.10	0.11	0.11	0.13	0.10	0.09	0.09	0.10	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.09	0.08
23	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.11	0.13	0.15	0.16	0.16	0.22	0.24	0.24	0.55	0.88	1.07	0.92	0.86	0.65	0.55	0.51	0.47
24	0.43	0.45	0.42	0.39	0.36	0.32	0.31	0.30	0.29	0.33	0.28	0.30	0.31	0.28	0.29	0.29	0.31	0.32	0.32	0.32	0.32	0.32	0.31	0.30
25	0.32	0.34	0.34	0.33	0.40	0.40	0.34	0.33	0.32	0.31	0.33	0.29	0.28	0.35	0.30	0.29	0.29	0.31	0.36	0.28	0.27	0.28	0.28	0.32
26	0.32	0.26	0.30	0.29	0.32	0.27	0.27	0.26	0.33	0.35	0.38	0.34	0.29	0.32	0.30	0.28	0.28	0.28	0.28	0.26	0.28	0.28	0.28	0.30
27	0.35	0.41	0.38	0.37	0.34	0.33	0.36	0.51	0.48	0.43	1.07	0.87	0.41	0.35	0.55	0.34	0.28	0.26	0.24	0.24	0.24	0.25	0.25	0.25
28	0.24	0.27	0.31	0.35	0.27	0.25	0.24	0.24	0.22	0.22	0.22	0.22	0.21	0.22	0.22	0.22	0.23	0.24	0.23	0.23	0.23	0.23	0.22	0.22
29	0.21	0.22	0.25	0.20	0.43	0.40	0.23	0.26	0.20	0.21	0.21	0.21	0.20	18.5	17.4	5.00	2.34	1.87	1.31	1.16	0.95	0.85	0.78	0.67
30	0.62	0.59	0.54	0.49	0.47	0.42	0.41	0.38	0.37	0.36	0.32	0.34	0.33	0.31	0.32	0.29	0.28	0.27	0.27	0.27	0.28	0.26	0.27	0.26
31	0.24	0.27	0.26	0.26	0.29	0.30	0.26	0.24	0.27	0.38	0.33	0.25	0.26	0.26	0.28	0.27	0.27	0.28	0.26	0.26	0.27	0.26	0.27	0.27

SOLAR X-RAYS BY SATELLITE
EXPLORER 37

JULY 1973

NAVAL RESEARCH LABORATORY

OUTSTANDING EVENTS

DAY	START TIME	0.5-3A FLUX XE-5	PEAK TIME	1-8A FLUX XE-4	PEAK TIME	8-20A FLUX XE-3	PEAK TIME	END TIME	COMMENTS
4	0213E	5.60D	0216E	41.00	0215	21.00	0213	0222	
8	0816	8.90	0816	41.00	0820	19.00	0819	0824	
8	1914	6.70	1915	41.00	1923	21.00	1922	1928	
8	2351	12.00	2354	48.00	0018	26.00	0020	0032	
9	0510	39.00	0514	94.00	0527	40.00	0515	0533	
9	1627	14.00	1641	51.00	1629	21.00	1629	1659	
10	0218	32.00	0220	86.00	0220	24.00	0220	0225	
10	0704	8.90D	0712E	54.00	0705	27.00	0704	0712	
29	1321	130.03	1036	710.00	1340	250.00	1344	1708	

Note: Data from SOLRAD 10 are not available after 2200 UT on June 11 due to a malfunction of the data storage system. Hourly flux values and X-ray flares will be reported from SOLRAD 9 until SOLRAD 10 resumes normal operation.

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1973

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
03	0628	0644	0631	1-	1			1					0627E	12417
03	1400	1426	1415	1-	1			1					1350	12417
03	1526	1551	1537	1-	1			1					1530	12415
04	0202	0235	0213	1-	3				2				0201	12414
06	0942	1000	0945	1-	1						1		0940	12426
06	1210U	1226U	1218U	1-	1							1	1213	12417
07	0617E	0646	0626	1-	1			1					0618E	12417
07	1607	1700	1618	1-	5				1	2	7		1607	12427
08	0205	0246	0216	1-	1				1				0205	12427
08	0810	0845	0824	1-	1				1				0812	12417
08	1153	1235	1204	1+	3	1			1				1150	12417
08	1515	1645	1545	1-	1				1		1		1517	12417
08	1906	1950	1917	1-	3	1					5		1905	12419
08	2004	2050	2013	1-	3	1		2			5	1	2002	12417
09	0508	0540	0515	1-	5			1	2				0505	12417
09	0615E	0700	0622	1-	3			1	2		1		0605E	12417
09	1200	1230	1215	1-	1			1			1		1200	12417
09	1625	1740	1647	1	5	2					6	1	1622	12417
10	0216	0245	0221	1-	3				2			1	0216E	12417
10	0323	0350	0327	1-	1				1				0325E	12417
10	0702	0745	0720	1-	3	1			2				0700	12417
10	1355	1440	1403	1-	1				1		1		1354	12417
11	0624E	0645	0631	1-	1			1					0635E	12417
18	0238	0321	0244	1-	1				1				0240E	12431
19	1641	1657	1651	1-	1			1					1644E	12445
25	0931	0946	0941	1-	1			1					0932	12461
26	0000	0003	0002	1-	1							1	0000	12461
27	1031	1050	1039	1-	1						1		1025	12460
29	0720	0750	0739	1-	1						1		0719	12460
29	1314	1630	1350	2+	5	7		4	3	1	10	1	1310	12461

STATIONS REPORTING FOR JULY 1973

AAVSO (A1, A17, A19, A34, A39) (SEA) (A1, A19, A21, A30, A31, A33, A37, A38) (SES) (A31) (SWF)
BOULDER (BO) (SCNA, SEA)
DARMSTADT (DA) (SWF)
ENKOPING (SW) (SWF)
HAWAII (HA) (SFD)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
KUHLUNGSBORN (KU) (SEA, SPA)
MANILA (MA) (SPA)
MCMATH (MC) (SWF, SCNA)
NEUSTRELITZ (NU) (SWF, SCNA)
PANSKA VES (PU) (SWF, SES)
POITIERS (PO) (SEA)
PRESTON (LO) (SEA)
SACRAMENTO PEAK (SP) (SFD)
SAO PAULO (UM) (SPA, SES)
SOFIA (SF) (SES)
TABLE MOUNTAIN (TM) (SWF, SPA, LF-SPA)
TORINO (TN) (SPA)
TRINIDAD (TR) (SWF)
UPICE (UI) (SEA)
WHITE SANDS (WS) (SWF)

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION
02	0805-0900 UM (16 kHz)
03	0800-0900 UM (16 kHz), 1015-1322 UM (16 kHz), 0732-1048 TR, 1703-1711 TR, 2350-2400 TM
04	1505-2000 PO
05	1300-2000 PO
06	1225-1740 PO, 1609-2400 WS
07	0000-0500 WS, 0402-1223 TM, 1405-1800 PO, 1855-2042 BO
08	1025-1850 PO
09	1200-1505 PO
10-31	0000-2400 A34
10	0755-0825 UM (16 kHz), 1015-1318 UM (16 kHz), 1340-2400 WS, 1850-1914 TM
11	0000-1450 WS, 2125-2141 UM (16 kHz)
12	2056-2200 WS
13	0000-1445 BO, 1135-1710 PO, 1400-1648 UM (13 kHz)
14	0950-1635 PO
15	1420-1535 TR
16-19	0755-1415 TR
16-30	0000-2400 A30

DATE	TIME (UT) and STATION
16	0757-0818 UM (16 kHz), 1340-1359 TM, 1436-1930 UM (13 kHz)
17	1230-1231 TR, 1255-1448 TR, 1305-1335 UM (13 kHz), 1842-1846 A31
19	0400-1302 TM
20	1400-1729 UM (17 kHz)
21	0505-1244 TR, 1453-1520 TR, 1624-1813 TR, 2105-2400 BO
22	0000-1515 BO, 0219-0234 MC
23	1659-1706 TR, 0000-2400 BO
24	1534-1604 TR, 1718-1737 TR, 1828-1840 TR
25	1424-1442 TR, 1602-1903 TR, 1736-1752 TM, 1804-2145 TM, 1725-2400 BO
27	1357-1626 TR, 1600-1649 UM (17 kHz), 1747-1936 TR
28	0100-0150 MA, 2105-2400 BO
29	0847-1910 TR, 1943-2050 BO
30	1421-1627 TR
31	1539-1550 TR, 1706-1735 TR, 1734-1941 TM

SID's BY McMATH REGION

JULY 1973

DAY	14	15	17	19	26	27	31	45	60	61	X-RAY	UN-KNOWN	NO FP
01													
02													
03		1	2										
04	1												
05													
06			1		1								
07			1			1							
08			4	1		1							
09			4										
10			4										
11			1										
12													
13													
14													
15													
16													
17													
18							1						
19								1					
20													
21													
22													
23													
24													
25										1			
26										1			
27									1				
28													
29									1	1			
30													
31													

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1973

JUL. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
01	0000	0146	HARV													
	0000	0230	BOUL													
			CULG							0014	0654					IW
	0000	0735	CULG				0014	0015.5	1							IIIG
			CULG							0016.5	0615	1				IIIN
			CULG				0057.5	0058.5	1							FAST DRIFT
			CULG				0149.5	0150.5	1							IIIG
			CULG				0242.5	0243	1							IIIG
			CULG				0244.5	0246.5	1							IIIG
			CULG				0435.5	0438	1							FAST DRIFT
	0345	1922	WEIS							0755.5	0756.0	3				UNCLF
	0914	2420	SGMR													
	1217	2400	HARV													
	1130	2400	BOUL							2011.9	2012.0	1	2011.9	2012.0	1	III
			BOUL							2029.9	2030.0	1	2029.9	2030.0	1	III
			BOUL										2052.2	2052.4	1	III
	2036	2400	CULG							2121		1				IIIB
			BOUL							2121.5	2121.6	1	2121.5	2121.6	1	III
			CULG							2134	2359					IIIS,W
			BOUL										2206.7	2207.0	1	III
			BOUL							2247.8	2248.0	1	2247.8	2248.0	1	III
02	0000	0230	BOUL													
	0000	0146	HARV													
	0000	0211	CULG							0000	0205	1				IIIG,N
	0346	0710	WEIS													
	0735	1846	WEIS													
	1130	2400	BOUL										1357.9	1403.0	1	IIIG
	0915	2420	SGMR										1400.1	1402.2	1	IIIG
			BOUL							1520.9	1520.9	1				III
			BOUL										1803.2	1803.6	1	III
			SGMR										1803.2	1803.6	1	III
			BOUL							1812.9	1813.8	1	1812.9	1813.8	1	IIIG
			BOUL							1813	2400	1	1813	2400	1	CONT
			SGMR										2020.0	2020.2	2	III
	1216	2400	HARV							2122	2123	1	2122	2123	1	IIIG
			BOUL							2122.6	2123.5	3	2122.6	2123.5	3	III
			SGMR										2122.9	2123.1	2	III
			HARV				2332	2335	1							IIIGG
03	0000	0146	HARV													
	0000	2400	BOUL							0000	0230	1	0000	0230	1	CONT
	0047	0200	CULG							0047	0200	1				IIIS
	0344	1154	WEIS							0522.3	1620.5	2				IN
			WEIS							0535.6	1814.5	1				IIIB,N
			WEIS							0550.5	0550.6	1				IIIB
			WEIS							0702.9	0703.1	3				IIIG
			WEIS							0811.6	0812.6	3				IIIG
			WEIS							0818.3	0818.5	1				IIIG
	0915	2420	SGMR										1019.9	1021.3	1	III
			SGMR										1144.8	1147.1	2	IIIG
	1130	2400	BOUL							1146.1	2400	1	1146.1	2400	1	CONT
			WEIS							1148.2	1148.8	1				IIIG
			SGMR										1225.9	2420.0	2	CONT
	1217	2400	HARV							1228	1235	2				IIIGG
			BOUL							1226.2	2355.1	3	1226.2	2355.1	3	IIIN
			HARV							1227	1252	1				IN
			HARV							1403	1405	1	1404	1405	1	IIIGG
			HARV							1414	1807	1				IN
			HARV							1447	1754	2	1447	1754	2	IIIN
	1157	1911	WEIS							1449.4	1449.6	1				IIIB
			HARV				1539	1541	1	1539	1544	3	1539	1544	3	IIIGG,V
			BOUL							1539.2	1543.1	3	1539.2	1543.1	3	IIIGG
			WEIS							1539.3	1543.6	3				IIIGG
			SGMR										1539.3	1542.3	3	IIIG
			HARV							1612	1614	3	1612	1614	3	IIIGG
			BOUL							1612.2	1613.9	3	1612.2	1613.9	3	III
			WEIS							1612.3	1613.5	2				IIIG
			HARV							1618	1619	1	1618	1619	1	IIIG
			HARV							1642	1644	1	1642	1644	1	IIIG
			HARV							1653	1655	2	1653	1655	2	IIIG
			WEIS							1653.0	1653.3	2				IIIB
			HARV							1700	1702	2	1700	1701	2	IIIG
			BOUL							1735.2	1738.6	3	1735.2	1738.6	3	IIIG
			WEIS							1735.4	1737.3	3				IIIG
			HARV				1738	1739	2	1733	1741	3	1733	1741	3	IIIGG,V
			HARV							1754	1824	1	1754	1824	1	IIIS
			HARV							1813	1814	3	1813	1814	3	IIIG,V
			HARV							1835	1944	1	1835	1944	1	IIIN
			HARV							1920	1923	3	1920	1923	3	IIIGG
			SGMR										1931.9	1937.3	3	IIIG
			HARV				1932	1937	2	1929	1937	3	1929	1937	3	IIIGG,V
			BOUL							1932.0	1937.2	3	1932.0	1937.2	3	U
			HARV							2014	2102	2	2014	2102	2	IIIS
			HARV							2131	2132	3	2131	2132	3	IIIG
			HARV							2135	2136	2	2135	2136	2	IIIG
			HARV							2311	2314	2	2311	2314	2	IIIGG
			HARV							2329	2330	1	2329	2330	1	IIIG
			HARV							2338		3	2338		3	IIIG
			HARV				2353	2354	1	2352	2354	3	2352	2354	3	IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1973

JUL. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
04	0000	0230	BOUL							0000	0230	1	0000	0230	1	CONT
	0000	0146	HARV							0003	0006	2	0003	0006	2	IIIGG
			BOUL							0003.2	0230	3	0003.2	0230	3	IIIN
			HARV							0104	0105	2	0104	0105	2	IIIG
			HARV							0142	0144	2	0142	0144	1	IIIGG
			BOUL							0205.6	0211.9	3				II
			CULG				0236	0710	1	0236	0710	1				IS,CONT
	0236	0735	CULG							0236	0701	2				IIIS
			CULG							0324	0329	2				IIIGG
	0344	1700	WEIS							0415.2		2				I
			CULG							0441.5	0448	2				IIIGG
			WEIS							0445.6	0445.9	1				IIIG
			WEIS							0447.2	0447.4	2				IIIG
			CULG							0601.5	0603	2				IIIGG
			WEIS							0602.0	0602.4	1				IIIG
			CULG							0614	0619	1				IIIGG
			WEIS							0728.0	0728.2	1				IIIG
			WEIS							0827.3	0829.5	1				IIIGG
			WEIS							0851.5	0851.7	1				IIIG
			WEIS							0929.3	0929.7	1				IIIG
			WEIS							0935.3	0937.6	3				IIIG
	0916	2419	SGMR										0936.5	0937.1	3	III
			WEIS							1132.8	1330.8	2				IIIG,N
			SGMR										1132.9	1231.2	2	IIIG
	1130	2400	BOUL							1211.9	1214.4	1	1211.9	1214.4	1	IIIG
			BOUL							1221.7	1222.5	2	1221.7	1222.5	2	IIIG
	1216	2400	HARV							1222	1224	1	1222	1224	1	IIIGG
			BOUL							1223.1	1223.7	2	1223.1	1223.7	2	IIIG
			BOUL							1226.4	1228.0	1	1226.4	1228.0	1	IIIGG
			HARV							1227	1231	2	1227		1	IIIGG
			BOUL							1229.5	1231.1	1	1229.5	1231.1	1	IIIG
			BOUL							1240.9	1241.1	1				III
			BOUL							1321.5	1321.7	1				III
			HARV							1418	1700	1				IN
			BOUL							1447.2	1447.3	1	1447.2	1447.3	1	III
			BOUL							1532.5	2120.0	2	1532.5	2120.0	2	IIIN
			SGMR										1532.8	1632.1	1	IIIG
			BOUL							1545	2400	1	1545	2400	1	CONT
			HARV							1600	1601	2	1600	1601	2	IIIG
			HARV							1633	1635	2	1633	1635	2	IIIG
			SGMR										1634.5	1648.3	1	IIIG
			HARV							1641	1642	2	1641	1642	2	IIIG
			HARV							1645	1646	3	1645	1646	1	IIIG
			WEIS							1645.3	1648.5	1				IIIG
			HARV							1648		2	1648		1	IIIG
			HARV							1743	1744	2	1743	1744	2	IIIG
			SGMR										1743.8	1744.3	1	III
			HARV				1806	1838	1							I
			BOUL							1821.7	1825.1	3	1821.7	1825.1	3	IIIGG
			SGMR										1821.9	1842.8	3	IIIG
	1716	1911	WEIS							1822.1	1822.4	2				IIIG
			WEIS							1823.7	1824.3	1				IIIG
			WEIS							1825.0	1825.7	1				IIIG
			BOUL							1827.4	1832.7	3	1827.4	1832.7	3	IIIGG
			WEIS							1829.1	1832.3	1				IIIG
			HARV				1830	1832	1	1821	1833	3	1821	1833	3	IIIGG
			SGMR										1936.8	1937.6	1	IIIG
			HARV							1937		3	1937		3	IIIG
			HARV							1945	1947	2	1945	1947	2	IIIGG
			CULG							2117.5	2354	1				IIIS
			CULG							2126	2130	1				IIIGG
			SGMR										2128.5	2130.0	1	III
	2036	2400	CULG				2134	2350	1	2115	2300	1				IS
05	0000	0736	CULG							0000	0657	1				IIIS
	0000	0147	HARV													
	0000	0230	BOUL							0000	0131	1	0000	0131	1	CONT
			CULG				0044	0712	1	0101	0653.5	1				IS
			CULG							0219	0221.5	1				IIIG
			CULG							0228	0232	1				IIIG
			CULG							0329	0331	1				IIIG
	0345	1912	WEIS							0551.9	0552.1	2				IIIG
			CULG							0552	0555	2				IIIG,U
			CULG							0641	0642	1				IIIG,U
			CULG				0645.5	0646.5	2	0645.5	0646.5	2	0646	0646.5	1	IIIG,U
			WEIS							0645.7	0646.3	3				IIIG
	0917	2419	SGMR													
	1217	2400	HARV				1222	1717	1	1223	1743	1				I
	1130	2400	BOUL							1414.7	1414.9	1	1414.7	1414.9	1	III
			BOUL							1458.4	1458.5	1	1458.4	1458.5	1	III
			BOUL										1907.2	1908.9	1	IIIG
			BOUL							1915.4	1916.4	1	1915.4	1916.4	1	IIIG
			BOUL										1924.2	1924.3	1	III
			BOUL							1938.7	1938.7	1				III
			BOUL							2029.7	2029.9	1	2029.7	2029.9	1	III
			BOUL										2037.4	2037.6	1	III
	2037	2138	CULG				2105	2138	1	2110	2138	1				IS,CONT
			CULG							2109.5	2138	1				IIIS
			CULG							2157	2400	1				IIIS
			CULG				2208	2209	1	2208	2209	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1973

JUL. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
05			BOUL										2209.5	2209.9	1	III
	2146	2400	CULG				2215.5	2400	1	2146	2340.5	1				IS,CONT
			CULG							2307		1				IIIB
			BOUL							2307.5	2307.8	1	2307.5	2307.8	1	III
			BOUL							2306	2400	1	2308	2400	1	CONT
			CULG							2320	2336.5	1				IIIGG
06			CULG							0000	0659	1				IIIS
	0000	0737	CULG				0000	0640	1							IS
	0000	0230	BOUL							0000	0150	1	0000	0130	1	CONT
	0000	0147	HARV													
	0347	0644	WEIS							0450.0	0505.4	1				I
	0654	0804	WEIS													
	0917	2419	SGMR													
	1232	2400	HARV													
	1130	2400	BOUL							1321.2	1321.4	1	1321.2	1321.4	1	III
			BOUL							1450.0	1450.7	1	1450.0	1450.7	1	III
			BOUL										1519.1	1519.4	1	III
			BOUL										1554.2	1559.2	1	IIIG
			BOUL										1610.4	1610.6	1	III
			BOUL							1657.2	1657.7	1	1657.2	1657.7	1	IIIG
			BOUL							1804.4	1806.6	1	1804.4	1806.6	1	IIIG
			BOUL							1837.2	1837.5	1	1837.2	1837.5	1	III
			BOUL										1914.1	1914.4	1	III
			BOUL										1950.9	1951.5	1	IIIG
			BOUL										2043.4	2043.6	1	III
			BOUL							2051.2	2051.4	1	2051.2	2051.4	1	III
			BOUL										2058.0	2058.2	1	III
	2037	2400	CULG							2112.5	2400	1				IIIS
			CULG				2128	2400	1							IS,CONT
			BOUL										2218.5	2224.1	1	IIIG
07			CULG				0000	0406.5	1	0007.5	0406	2				IS
	0000	0737	CULG							0000	0707.5	1				IIIS
	0000	0230	BOUL							0013.0	0013.5	1	0013.0	0013.5	1	III
			BOUL							0018.5	0212	1				IS
	0000	0147	HARV				0020	0115	1	0004	0141	1				I
			BOUL							0140.5	0140.7	1	0140.5	0140.7	1	III
			CULG							0410	0411.5	1				IIIG
			CULG				0417	0417.5	1	0417	0417.5	1				IIIG
			CULG							0419	0437.5	2				II
	0350	1200	WEIS							0419.0	0426.0	1				II
	0917	2418	SGMR										1521.9	1522.1	2	III
	1130	2400	BOUL							1522.4	1522.6	1				III
			BOUL							1523.7	1523.8	1				III
	1232	2400	HARV							1630	1631	3	1630	1631	3	IIIB
			SGMR										1630.7	1630.5	2	IIIG
			BOUL							1631.2	1631.3	1	1631.2	1631.3	1	III
	1213	1913	WEIS							1635.8	1638.5	2				III
			HARV							1636	1639	3	1636	1639	3	IIIG
			BOUL							1636.3	1639.0	2	1636.3	1639.0	2	IIIGG
			BOUL							1702.4	1702.5	1				III
			BOUL							1705.5	1706.9	2				IIIG
			SGMR										1706.2	1706.5	1	III
			SGMR										1810.9	1814.1	2	IIIG
			HARV							1811		3	1811		3	IIIG
			BOUL							1811.5	1811.7	1	1811.5	1811.7	1	III
			HARV							1814		3	1814		3	IIIG
			BOUL							1814.3	1814.7	2	1814.3	1814.7	2	IIIG
			HARV							1850	1851	3	1850	1851	3	IIIG
			SGMR										1850.7	1851.0	1	III
			BOUL							1851.1	1851.3	2	1851.1	1851.3	2	III
			HARV				2016	2018	1	2015	2021	3	2015	2021	3	IIIGG
			BOUL							2016.1	2016.6	2	2016.1	2016.6	2	III
			SGMR										2016.5	2031.3	2	IIIG
			BOUL							2017.5	2018.4	2	2017.5	2018.4	2	IIIG
			BOUL							2018.6	2018.7	1	2018.6	2018.7	1	III
			BOUL							2020.6	2021.2	2	2020.6	2021.2	2	IIIG
			BOUL							2027.8	2031.8	1	2027.8	2031.8	1	IIIGG
			HARV							2029	2031	2	2029	2031	2	IIIGG
			HARV				2052	2053	2							IIIG
	2037	2400	CULG				2104	2125	1	2108	2239	1				I
			CULG							2115.5	2400	1				IIIS
			BOUL							2115.9	2116.3	1	2115.9	2116.3	1	III
			BOUL							2122.3	2122.4	1	2122.3	2122.4	1	III
			BOUL							2126.7	2126.9	1				III
08	0000	0147	HARV													
	0000	0737	CULG							0000	0655.5	1				IIIS
	0000	0230	BOUL							0149.2	0149.3	1	0149.2	0149.3	1	III
			CULG							0246.5	0247.5	1				IIIG
			CULG							0252	0255	1				IIIG
			CULG							0548	0552.5	2				IIIG
	0352	1553	WEIS							0550.5	0550.8					III
			CULG				0603	0712	1							IS
	0918	2418	SGMR													
			WEIS							1048.0	1215.0	1				I
	1130	2400	BOUL										1326.3	1326.3	1	III
	1600	1915	WEIS													
			BOUL										1627.4	1627.5	1	III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1973

JUL. 1973	TIMES OF OBSERVATION		STATION	EVENTS													SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.		
08			BOUL							1748.2	1748.4	1	1748.2	1748.4	1		III
			BOUL							1748.5	1820	1	1748.5	1820	1		CONT
			BOUL							1822.8	1834.2	1	1822.8	1834.2	1	II	
			BOUL							1827.8	1836.1	1				II	
	1232	2400	HARV				1957	2348	1								IN
			HARV				2006	2007	1	2006	2007	1					IIIG
	2038	2400	CULG				2103	2348	1								IS
			BOUL										2108.2	2109.4	1		IIIG
			CULG							2143.5	2400	1					IIIS
			BOUL										2332.5	2332.9	1		III
09	0000	0737	CULG							0000	0654.5						IIIS,W
			CULG				0017.5	0710	1	0504.5	0515.5	1					IS
	0000	0147	HARV				0027	0034	1								IN
	0000	0230	BOUL							0039.9	0040.7	1	0039.9	0040.7	1		IIIG
			BOUL							0047.0	0047.3	1	0047.0	0047.3	1		III
			BOUL							0048.1	0048.3	1	0048.1	0048.3	1		III
			BOUL							0050.0	0050.7	1	0050.0	0050.7	1		III
			CULG							0059	0100	1					IIIG,U
			BOUL							0104.9	0104.9	1	0104.9	0104.9	1		III
			BOUL										0110.4	0110.7	1		III
			BOUL										0128.1	0133.6	1		IIIG
			CULG							0345.5	0347	1					IIIG
	0357	1914	WEIS														
	0919	2418	SGMR														
	1130	2400	BOUL							1323.0	1323.3	1	1323.0	1323.3	1		III
			BOUL										1326.2	1326.5	1		III
			BOUL										1403.6	1404.0	1		III
			BOUL							1517.9	1518.4	1	1517.9	1518.4	1		III
			BOUL							1522.1	1522.3	1	1522.1	1522.3	1		III
	1232	2400	HARV				1548	1620	1								IN
	2038	2400	CULG				2112.5	2313	1								I
			CULG							2122	2347.5	1					IIIN
			BOUL							2124.0	2127.3	1	2124.0	2127.3	1		III
			CULG				2245		1								IIIG
10	0000	0230	BOUL														
	0000	0147	HARV														
	0000	0737	CULG							0033	0608	1					IIIN
			CULG				0135	0658	1								I
	0454	0545	WEIS														
	0906	1918	WEIS														
	0920	2417	SGMR														
	1232	2400	HARV				1443	1459	1								IN
	1130	2400	BOUL							2111.9	2112.1	1	2111.9	2112.1	1		III
	2038	2400	CULG							2137.5							IIIB,W
			CULG							2141.5		1					IIIB
			BOUL							2141.7	2141.8	1	2141.7	2141.8	1		III
			CULG							2156							IIIB,W
			CULG							2159	2200.5						IIIG,W
			CULG				2212.5		1	2212.5		1					IIIB
			CULG							2321.5	2324						IIIG,W
			CULG							2327	2329.5						IIIG,W
11	0000	0147	HARV														
	0000	0737	CULG				0045	0046	1	0044.5	0046.5	1					IIIG
	0000	0230	BOUL							0045.5	0046.1	1	0045.5	0046.1	1		IIIG
			CULG				0323	0344.5									IW
			CULG				0444	0535									IW
			CULG							0446	0637						IIIN,W
	0458	1357	WEIS														
			CULG				0621.5	0711.5	1								I
	0920	2417	SGMR														
	1130	2400	BOUL														
	1237	2400	HARV														
	1406	1906	WEIS														
	2038	2400	CULG														
12	0000	0147	HARV														
	0000	0230	BOUL														
	0000	0737	CULG							0305	0306						IIIG,W
			CULG							0335	0337	1					IIIG,U
	0355	1909	WEIS														
			CULG							0525.5		1					IIIB
	0921	2416	SGMR														
	1231	2400	HARV														
	1130	2400	BOUL							1724.8	1725.0	1	1724.8	1725.0	1		III
	2038	2400	CULG							2230		1					IIIB,U
13	0000	0230	BOUL														
	0000	0147	HARV														
	0000	0737	CULG							0001	0002						IIIG,W
			CULG							0110	0111.5						IIIG,W
	0355	0416	WEIS														
	0649	1903	WEIS														
	0922	2416	SGMR														
	1130	2400	BOUL														
	1232	2400	HARV														
	2038	2400	CULG							2108	2322	1					I
14	0000	0147	HARV														

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1973

JUL. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
14	0000	0230	BOUL													
	0000	0737	CULG							0024	0025					IIIG,W
			CULG							0027.5	0028	1				IIIG
	0401	1217	WEIS													
			CULG							0528		1				IIIB,RS
	0923	2415	SGMR													
	1231	2400	HARV													
	1130	2400	BOUL							1314.0	1314.2	1				III
	1555	1901	WEIS													
	2038	2406	CULG													
15	0000	0732	CULG													
	0000	0230	BOUL													
	0000	0146	HARV													
	0406	1906	WEIS													
	0924	2414	SGMR													
	1232	2400	HARV													
			CULG							2330	2400	1				IV
	2038	2400	CULG							2330	2400	1				I
			CULG							2337	2340					IIW
	1130	2400	BOUL							2337.2	2339.5	2	2337.2	2339.5	2	III
			BOUL							2340.5	2400	3	2340.5	2410	3	IV
16	0000	0230	BOUL							0000	0105	3	0000	0105	3	IV
	0000	0146	HARV													
	0000	0738	CULG							0000	0045	1				IV
			CULG							0003.5	0005	1				P
			CULG							0016	0021	1				IIIGG
			CULG							0022	0037	1				II
			CULG							0024	0025	1				IIIG,V
			CULG							0027	0041.5	1				P
	0416	0508	WEIS													
	0659	0709	WEIS													
	0748	1901	WEIS													
	0924	2414	SGMR													
	1130	2400	BOUL													
	1232	2400	HARV													
	2038	2400	CULG													
17	0000	0146	HARV													
	0000	0230	BOUL													
	0000	0738	CULG							0324		1				IIIB
	0404	0950	WEIS													
	0925	2413	SGMR													
	1000	1442	WEIS													
	1231	2255	HARV													
	1521	1902	WEIS													
	1130	2400	BOUL							1916.1	1916.3	1	1916.1	1916.3	1	III
	2038	2400	CULG							2136						IIIB,W
	2259	2343	HARV													
			CULG							2348	2348.5	1				IIIG
	2355	2400	HARV													
18	0000	0146	HARV													
	0000	0230	BOUL													
	0000	0738	CULG							0019						IIIB,W
			CULG							0056.5	0237					IIIN,W
			CULG							0100.5	0102	2				IIIG
			CULG							0136.5	0138	1				IIIG
			CULG				0239	0240	1	0237.5	0241	2				IIIGG,V
			CULG							0242	0243	1				IIIG
			CULG							0249.5	0302	2				II
			CULG							0309.5	0310	1				IIIG
			CULG							0321.5	0322	1				UNCLF
	0406	1544	WEIS													
			CULG							0506		1				IIIB
			CULG							0646.5						IIIG,W
	0926	2412	SGMR													
	1130	2400	BOUL													
	1232	2340	HARV													
	1552	1901	WEIS													
			CULG							2135.5	2136.5					IIIG,W
	2038	2400	CULG				2321	2400		2128	2400					IS,W
	2348	2400	HARV													
19	0000	0146	HARV													
	0000	0230	BOUL													
	0000	0738	CULG				0000	0012		0000	0110					IS,W
	0408	1848	WEIS													
	0927	2412	SGMR													
	1130	2400	BOUL													
	1231	1412	HARV													
	1423	2400	HARV													
	2038	2400	CULG													
20	0000	0145	HARV													
	0000	0230	BOUL													
	0000	0723	CULG							0125.5						IIIB,W
			CULG				0222.5		1	0222.5		1				IIIB
	0412	0646	WEIS													

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1973

JUL. 1973	TIMES OF OBSERVATION		STATION	EVENTS													SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.		
20			CULG							0654.5	0655						IIIG,W
	0700	1848	WEIS														
	1232	2400	HARV							1844	1847	2	1844	1847	2		IIIGG,V
	1130	2400	BOUL							1844.4	1847.7	2	1844.4	1847.7	2		III
	0928	2411	SGMR										1844.9	1847.2	2		IIIG
	2039	2400	CULG														
21	0000	0145	HARV														
	0000	0230	BOUL														
	0412	1240	WEIS														
	0000	0738	CULG							0539							IIIB,W
			CULG							0605.5	0607	2					IIIG,V
	0929	2410	SGMR														
	1232	2400	HARV														
	2038	2400	CULG							2243.5	2245	2					IIIG,V
	1130	2400	BOUL										2248.7	2249.7	2		III
			CULG							2251	2252.5	1					IIIG
			CULG							2348	2349	1					IIIG
			BOUL										2348.2	2348.8	1		III
			CULG							2352.5							IIIB,W
22	0000	0145	HARV														
	0000	0738	CULG							0108	0113	2	0111	0111.5	1		IIIG,U,V
	0000	0230	BOUL							0110.7	0112.6	2	0110.7	0112.6	2		IIIG
			CULG							0215	0215.5	1					IIIG
			CULG							0407	0408.5						IIIG,W
			CULG							0414	0415						IIIB,U,W
	1231	2400	HARV														
	1130	2400	BOUL										1333.6	1334.1	1		III
			BOUL										1752.9	1753.9	1		III
	0930	2409	SGMR										1753.1	1806.3	1		IIIG
			BOUL										1804.7	1805.8	1		III
	2038	2400	CULG							2148.5							IIIB,W
			CULG							2248	2248.5						IIIG,W
23	0000	0738	CULG														
	0000	0145	HARV														
	0000	0230	BOUL														
	1232	2400	HARV														
	1130	2400	BOUL							1420.5	1522.5	1	1420.5	1522.5	1		CONT
	0931	2408	SGMR										1428.3	1508.7	1		CONT
	2038	2400	CULG				2100.5	2101.5									IIIG,W
			CULG				2103.5	2104	1	2102.5	2104	1					IIIG
			CULG							2110							IIIB,W
			CULG							2123.5	2124						IIIG,W
24	0000	0738	CULG														
	0000	0145	HARV														
	0000	0230	BOUL														
	1231	2400	HARV														
	1130	2400	BOUL							1649.6	1650.5	1	1649.6	1650.5	1		III
	0931	2407	SGMR										1649.7	1651.1	2		III
			BOUL										1804.0	1805.0	1		III
	2038	2400	CULG							2121	2123	1					IIIG,V
			BOUL							2121.2	2122.7	2	2121.2	2122.7	2		IIIG
			SGMR										2121.7	2122.8	1		III
			CULG							2329	2329.5						IIIG,W
			CULG							2354.5	2355						IIIG,W
25	0000	0144	HARV														
	0000	0230	BOUL														
	0000	0724	CULG							0215.5							IIIB,W
			CULG							0459							IIIB,W
	0932	2406	SGMR														
	1232	2400	HARV														
	1522	1857	WEIS														
	1130	2400	BOUL										1527.2	1527.4	1		III
			BOUL										1533.0	1533.9	1		IIIG
	2038	2400	CULG														
26	0000	0230	BOUL							0000.5	0005.0	3	0000.5	0005.0	3		III
	0000	0738	CULG				0000.5	0002	1	0000	0004.5	2	0001	0002.5	1		IIIGG,V
	0000	0144	HARV				0001	0002	1	0001	0002	1	0001	0002	1		IIIG
			CULG							0007.5	0022	1				II	
			BOUL										0007.6	0011.1	1	II	
			BOUL							0008.0	0010.0	1				II	
			BOUL										0019.0	0023.5	1	II	
	0420	1646	WEIS														
			CULG							0503	0507.5	1					IIIG
	0933	2405	SGMR														
	1232	2400	HARV														
	1130	2400	BOUL										1317.0	1317.3	1		III
	1655	1858	WEIS														
	2038	2400	CULG				2116	2335		2144	2400						IS,W
			CULG							2142.5							IIIB,W
			CULG							2217.5							IIIB,W
27			CULG							0000	0720	1					IS
	0000	0738	CULG							0000							IIIB,W
	0000	0144	HARV														

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1973

JUL. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
27	0000	0230	BOUL													
			CULG							0259.5	0637					IIIN,W
	0423	1902	WEIS													
	0939	2404	SGMR													
	1231	2400	HARV													
	1200	2400	BOUL										1555.5	1555.6	1	III
			BOUL										1804.0	1804.2	1	III
			BOUL							2027.5	2029.2	1				II
	2038	2400	CULG							2056	2227	1				IS
			CULG							2122						IIIG,W
28	0000	0230	BOUL													
	0000	0144	HARV													
	0000	0738	CULG							0017						IIIG,W
			CULG				0022	0609								IN,W
			CULG				0204	0204.5								IIIG,W
			CULG				0354.5	0355								IIIG,W
	0426	0755	WEIS													
			CULG							0456.5		1				IIIG
			CULG							0502		1				IIIG
			CULG							0607.5		1				IIIG
	0820	1904	WEIS													
	1200	2400	BOUL							1435.7	1435.9	1	1435.7	1435.9	1	III
	1232	2400	HARV							1600		2	1600		2	IIIG
			BOUL							1600.0	1600.2	1	1600.0	1600.2	1	III
	0935	2403	SGMR										1600.0	1600.3	1	III
			HARV							2026	2027	2				IIIG
			BOUL							2026.5	2026.7	1	2026.5	2026.7	1	III
	2038	2400	CULG				2059.5	2231	1							IS
			CULG							2120.5	2121.5					IIIG,W
			CULG							2120.5	2359					IIIN,W
			CULG							2144	2144.5	1				IIIG
			CULG				2146	2147	1	2146	2148	1				IIIGG
			CULG							2226	2227.5	1				IIIG
			HARV							2227	2230	3	2228	2229	3	IIIGG
			CULG				2227.5	2228.5	1	2227.5	2229	2	2228	2228.5	1	IIIGG,V
			SGMR										2228.0	2228.5	2	III
			BOUL							2228.0	2228.8	2	2228.0	2228.8	2	III
			CULG				2229.5	2231	1	2229.5	2231	2				IIIG
			CULG							2234	2311	1				IS
			BOUL							2256.8	2257.2	1	2256.8	2257.2	1	III
29	0000	0230	BOUL													
	0000	0144	HARV													
			CULG				0205.5	0206	1	0205.5	0206	2				IIIG
			CULG				0213	0213.5	1	0213	0213.5	2				IIIG,U
			CULG							0214.5	0215.5	1				IIIG
			CULG				0230	0231.5	1	0228.5	0232	1				IIIGG
			CULG				0334	0335	1	0333.5	0335	2				IIIG
	0000	0738	CULG				0458	0617		0009.5	0703					IIIN,W
			CULG				0520	0521	1	0519.5	0520.5	1				IIIG
	0429	1102	WEIS							0520.0	0520.3	1				IIIG
			CULG							0553	0553.5	1				IIIG
			CULG				0554	0555	1	0554	0555	1				IIIG
			WEIS							0554.4	0554.7	1				IIIG
			CULG				0557	0558	2	0557	0558	2				IIIG
			WEIS							0557.1	0557.8	2				IIIG
			CULG							0611	0612	1				IIIG
			CULG							0616	0617	1				IIIG
			WEIS							0618.4	0619.9	1				IIIG
			CULG				0618.5	0619.5	1	0618	0620.5	2				IIIGG,V
			CULG							0624.5	0644	1				IS
			CULG				0634	0635	1	0634	0635	1				IIIG
			WEIS							0634.3	0634.6	2				IIIG
			WEIS							0731.9	0732.5	3				IIIG,V
			CULG							0732	0732.5	1	0732	0732.5	1	IIIG
			WEIS							0804.9	0806.3	2				IIIGG
	1112	1205	WEIS													
	1200	2400	BOUL										1317.5	1318.6	1	IIIG
	0936	2402	SGMR										1317.8	1318.2	1	III
	1231	2400	HARV							1321	1348	2	1321.5	1355	2	II
			BOUL							1321.1	1400.0	3	1321.1	1400.0	3	IV
			BOUL							1321.2	1330.0	3	1321.2	1330.0	3	II
			SGMR										1321.3	1355.3	3	IV
			HARV							1325	1328	3	1325	1328	3	IIIGG,RS
			HARV							1327	1340	3	1327	1340	3	H
			HARV				1338 E	1347	3							IV
			BOUL							1400.0	1900.0	1	1400.0	1900.0	1	IV
			BOUL							1445	1935	1				IS
			HARV							1616	2203	1				IN
	2038	2400	CULG							2054	2400	1				IS
			CULG							2110.5	2345					IIIS,W
			CULG							2345	2400					IIIN,W
30			CULG							0000	0620.5					IIIN,W
	0000	0738	CULG							0000	0530	1				IS
	0000	0143	HARV													
	0000	0230	BOUL													
			CULG							0221		1				IIIG
			CULG				0222.5	0223	1	0222.5	0223.5	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1973

JUL. 1973	TIMES OF OBSERVATION		STATION	EVENTS													SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
30			CULG							0430		1					IIIB
			CULG							0432	0432.5	1					IIIG
			CULG							0541.5	0542	1					IIIG
	0833	1637	WEIS														
	0937	2401	SGMR														
	1200	2400	BOUL														
	1246	2156	HARV														
	2039	2117	CULG														
	2138	2400	CULG														
	2203	2400	HARV														
31	0000	0142	HARV														
	0000	0230	BOUL														
	0000	0739	CULG														
	0422	1440	WEIS														
	0937	2400	SGMR														
	1200	2400	BOUL														
	1246	2400	HARV														
	1443	1838	WEIS														
	2039	2400	CULG														

The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of bursts
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity

Note: Beginning in May the frequency coverage at the Harvard Radio Astronomy Station, Fort Davis, Texas, has been extended from 10-2000 MHz to 10-4000 MHz.

SELECTED SOLAR EVENTS

JULY 1973

Culgoora

UT Date 1973 July	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions		Polarization	Intensity (1-3)		
				Central Dist. ($R_\odot$)	Position Angle (Deg.)				
2/3	2300	0500	(80 (160	1.0 1.0	30) 70)	variable	1-2	I	Bipolar structure
	0306	0307	(80 (160	1.1 0.9	30) 70)	0	3	III G	*
4	0003	0006	(80 (160	0.6 0.5	0) 70)	0	3	III G	*
	0204	0209	(80 (160	0.7 0.7	120) 120)	0	3	II	
	0235	0502	(80 (160	1.2 0.9	70) 90)	variable	2	IV S	Complex polarization - mainly R.H.
7	0417	0428	(80 (160	0.9 0.6	250) 230)	0	3	II	Double source at 80 MHz
16/17	2330	0030	(80 (160	1.6 1.2	330) 330)	0	2	IV S	Pulsations
18	0237	0241	(80 (160	1.2 0.8	320) 310)	0	2	III GG,V	Complex structure
	0244	0250	80	1.1	320	0	2	II	
	0250	0300	(80 (160	1.1 0.8	310) 280)	r	1	IV S	
22	0110	0113	(80 (160	1.6 1.2	300) 250)	0	2	III G, V, U	Extended source at 80 MHz.

* Other type III observed at same position during day.

Days without Heliograph observations: .....

COSMIC RAY INDICES
(Neutron Monitors)

JULY 1973

July 1973	THULE DAILY AVERAGE COUNTS PER HOUR	DEEP RIVER DAILY AVERAGE COUNTS PER HOUR	CALGARY DAILY AVERAGE COUNTS PER HOUR	SULPHUR MT. DAILY AVERAGE COUNTS PER HOUR	CLIMAX DAILY AVERAGE COUNTS PER HOUR	DALLAS DAILY AVERAGE COUNTS PER HOUR
1	4544.8	6884.7	11704.3	8737.1	Data not available at time of publication.	6260.4
2	4568.3	6897.8	11756.0	8775.6		6281.3
3	4567.9	6909.6	11798.2	8792.0		6288.5
4	4570.7	6932.5	11802.5	8809.1		6289.8
5	4573.8	6956.5	11810.9	8835.3		6291.9
6	4597.7	6974.5	11847.6	8878.8		6297.7
7	4617.2	6995.3	11931.9	8913.5		6333.6
8	4635.3	6981.1	11912.5	8896.6		6320.8
9	5564.9	6904.4	11764.9	8767.0		6236.0
10	4507.0	6877.2	11679.0	8699.6		6203.9
11	4496.4	6887.8	11677.1	8698.7		6216.3
12	4508.9	6908.8	11714.0	8716.8		6223.6
13	4515.8	6896.9	11721.6	8715.1		6230.5
14	4520.6	6881.7	11662.8	8704.9		6218.3
15	4506.1	6891.0	11662.4	8711.3		6218.5
16	4518.5	6899.8	11685.2	8740.2		6213.0
17	4513.6	6891.0	11659.5	8709.5		6212.5
18	4522.6	6900.1	11669.9	8734.5		6240.7
19	4519.8	6928.3	11757.0	8789.1		6263.7
20	4543.1	6927.9	11786.7	8828.5		6285.6
21	4552.6	6958.7	11814.4	8850.6		6304.1
22	4558.1	6991.9	11843.8	8891.0		6329.3
23	4584.8	7003.8	11917.5	8903.4		6342.5
24	4593.5	7027.5	11975.5	8908.1		6364.1
25	4613.9	7033.9	12005.9	8926.4		6377.8
26	4585.5	7011.5(23)	11964.5	8888.2		6383.4
27	4528.0	6920.2	11793.2	8799.9		6313.8
28	4517.1	6919.6	11762.1	8785.3		6285.0
29	4512.7	6908.7	11747.0	8782.9		6260.9
30	4524.2	6901.8	11744.2	8777.8		6268.5
31	4481.3	6833.0	11569.4	8619.7		6234.7

( ) Number of hours for which data are available if less than 24 (or number of section hours if less than 40 for Climax).

Churchill and Dallas Super Neutron Monitors, Scaling Factors 120.

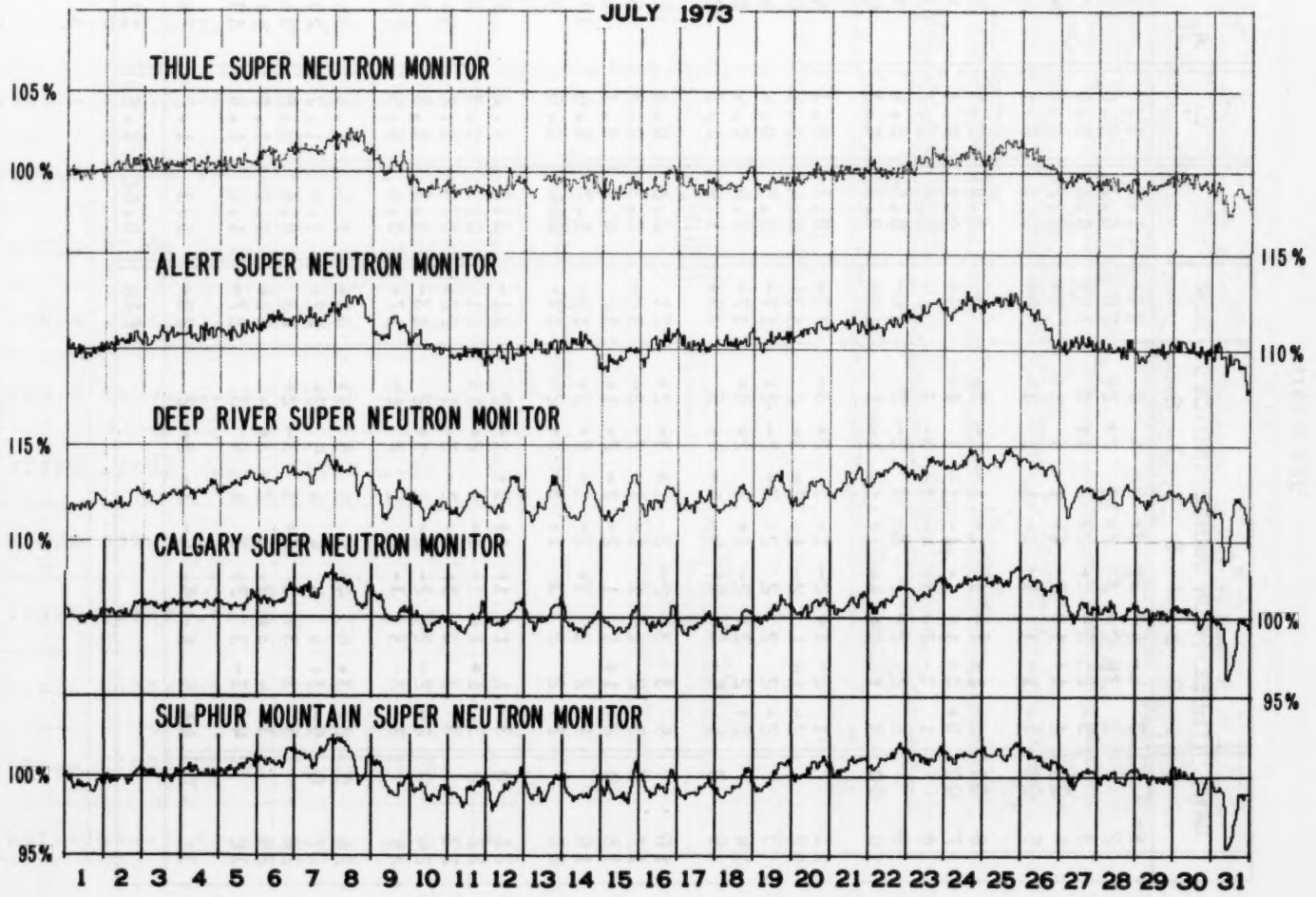
Deep River Super Neutron Monitor, Scaling Factor 300.

Thule, Calgary and Sulphur Mountain Super Neutron Monitors, Scaling Factors 100.

Climax IGC Station B305, Scaling Factor 100.

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)

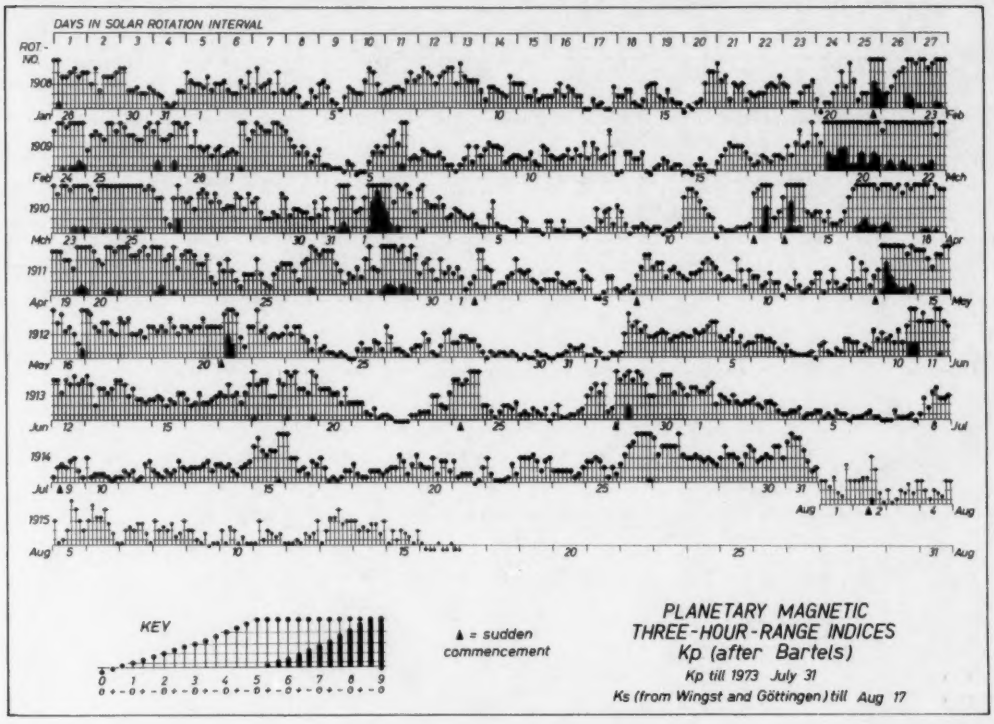

JULY 1973
THULE SUPER NEUTRON MONITOR
105 %
100 %
ALERT SUPER NEUTRON MONITOR
115 %
110 %
DEEP RIVER SUPER NEUTRON MONITOR
115 %
110 %
CALGARY SUPER NEUTRON MONITOR
100 %
95 %
SULPHUR MOUNTAIN SUPER NEUTRON MONITOR
100 %
95 %
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

GEOMAGNETIC ACTIVITY INDICES

JULY 1973

DAY		K_p THREE-HOUR RANGE INDICES 1	2	3	4	5	6	7	8	SUM	C_i	C_p	A_p
1	D	3	4-	4-	3+	3+	4-	4	2	27-	1.1	1.0	19
2		3	3-	2+	3	2+	2	2+	2+	20	0.7	0.6	11
3		3-	2	2-	2+	2+	2	1+	1	15+	0.4	0.4	7
4	QQ	1	1+	1+	2-	1-	1	1	1+	9+	0.2	0.2	4
5	QQ	1+	1-	1	1-	1+	1	1	0+	7+	0.0	0.1	4
6	QQ	1-	1-	1-	1	1+	1-	1-	0+	6	0.0	0.1	3
7	QQ	0+	0+	1+	1-	1-	1-	1	0+	5+	0.1	0.1	3
8		1	3-	2-	3+	4-	3-	3-	3	21-	0.9	0.7	13
9		1	2	2+	2	3-	3	2-	1	16-	0.5	0.4	8
10	QQ	3	1	1+	1+	1+	1	1-	1	11-	0.3	0.3	6
11		1	2-	1+	2-	1-	1	2+	3-	12+	0.3	0.3	6
12		2-	1+	1	2-	1+	2-	3-	2	13+	0.4	0.3	6
13		2-	2	2	2	2+	3-	2-	2+	17-	0.5	0.4	8
14		2+	2	2+	2-	1+	2	2+	3-	17-	0.4	0.4	8
15	D	4	5-	4-	3+	4-	4-	5+	5	33+	1.4	1.3	32
16		5	3	3	2-	2	1+	3-	2+	21	0.8	0.8	15
17	Q	3	2	1-	1	1-	1	2-	2-	12-	0.3	0.3	6
18	Q	2+	1+	1	1	2-	2-	2-	1+	12	0.3	0.3	6
19		2-	2	2	3+	3-	1+	2+	3+	19-	0.7	0.6	10
20		2+	2	2	3	1+	3-	3-	2-	18-	0.4	0.5	9
21	Q	3-	1	1+	1+	1+	0+	1-	2	11-	0.2	0.2	5
22	Q	3	1+	1-	1-	1-	1	2+	1+	11	0.3	0.3	6
23		3	3	3	3+	3-	2-	3-	3	22+	0.9	0.8	14
24	Q	2-	2-	2-	2-	2-	1	1+	2	13-	0.3	0.3	6
25		3-	3-	3	3-	2	1	2	1+	17+	0.6	0.5	9
26	D	2+	3+	4	4+	5	5	5	5+	34+	1.6	1.4	36
27	D	5-	3+	4	4	4	4	5	3+	32+	1.4	1.3	29
28		3	3	3+	3	3-	3	3-	2+	23	0.8	0.8	14
29		3	4	3+	3+	3	2+	3+	4	26+	1.0	1.0	18
30		4-	3-	3	3+	3	4	4	3	27-	1.1	1.0	19
31	D	4+	5	5-	5-	4-	3-	2-	2	29-	1.3	1.2	26
										MEAN	0.62	0.58	12

GEOMAGNETIC ACTIVITY INDICES



DAILY AVERAGE INDICES Ap

	1972					1973						
DAY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1	10	5	7	98	6	11	17	22	91	17	3	19
2	5	5	5	42	5	2	14	40	54	12	20	11
3	5	5	4	13	6	2	16	14	26	9	14	7
4	132	6	7	6	4	11	7	4	9	8	19	4
5	182	5	2	3	2	21	9	6	7	5	10	4
6	87	10	2	7	3	20	15	28	4	13	8	3
7	20	5	8	7	10	8	14	8	4	16	4	3
8	9	9	4	7	6	15	25	7	8	17	6	13
9	74	8	4	7	4	16	21	11	7	12	9	8
10	18	15	6	4	2	28	11	8	4	7	33	6
11	17	11	19	7	3	24	8	8	24	6	34	6
12	7	5	21	6	8	25	9	14	3	7	30	6
13	5	53	21	4	30	16	4	5	46	20	24	8
14	9	54	26	4	9	8	7	4	57	80	18	8
15	10	24	8	17	29	9	8	3	9	37	13	32
16	6	19	12	31	33	8	10	12	60	32	11	15
17	6	26	2	12	13	5	16	6	51	27	18	6
18	13	14	11	9	8	3	11	20	46	22	30	6
19	14	6	34	11	7	10	10	82	42	21	38	10
20	15	4	14	27	4	29	9	80	46	23	18	9
21	15	2	16	9	2	22	49	58	42	46	6	5
22	8	4	13	13	14	5	46	53	44	20	3	6
23	3	13	18	11	30	13	48	50	25	15	10	14
24	2	16	11	5	13	22	54	49	14	4	34	6
25	5	6	6	8	4	20	31	50	14	6	6	9
26	18	7	8	14	5	20	34	32	28	8	4	36
27	25	8	7	11	2	33	44	28	26	10	4	29
28	8	8	11	12	4	33	20	22	26	8	21	14
29	8	25	21	9	15	22		16	59	3	41	18
30	6	8	20	4	19	15		15	18	3	29	19
31	7		29		13	6		33		4		26
MEAN	24	13	12	14	10	16	20	25	30	17	17	12

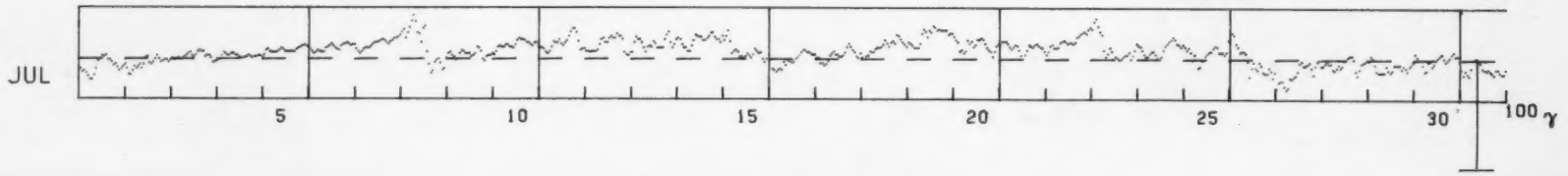
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

JULY 1973

NASA/GODDARD SPACE FLIGHT CENTER

(Time-UT)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-9	-12	-11	-13	-16	-19	-19	-15	-9	-2	0	3	2	3	-1	-1	-3	-6	-5	-8	-11	-9	-7	-5
2	-9	-14	-15	-11	-7	-9	-7	-5	-9	-5	1	2	-4	-5	-3	0	3	0	-3	-2	-1	-1	-3	-1
3	1	-1	0	1	0	0	2	3	5	6	3	2	4	7	8	7	7	2	3	3	1	-3	-3	-2
4	-1	0	3	6	5	3	4	5	5	4	3	2	1	1	1	2	3	2	1	2	2	3	3	2
5	4	8	9	7	6	6	6	7	8	10	9	7	7	7	7	7	7	9	10	11	12	13	12	11
6	9	7	5	6	8	7	6	6	10	11	12	14	12	10	9	8	12	13	14	15	14	12	13	13
7	9	7	5	7	9	10	10	10	12	14	15	15	16	17	18	17	15	14	16	17	19	19	20	22
8	25	27	19	24	29	35	40	34	24	23	15	28	30	6	-5	-13	-11	-3	-1	0	-4	-10	-9	1
9	5	6	3	2	-1	0	5	8	7	5	5	5	2	3	5	11	10	7	0	-2	2	3	3	5
10	4	7	11	12	11	11	13	13	11	11	10	13	17	19	18	18	17	15	15	13	12	15	15	12
11	11	10	9	6	5	7	11	16	15	15	18	14	12	15	17	21	25	28	28	24	16	8	9	9
12	7	7	6	7	7	7	8	13	18	19	15	15	19	21	19	19	23	21	21	18	6	4	3	6
13	6	15	20	18	18	15	10	6	11	12	11	16	14	10	10	10	10	18	22	25	15	10	13	18
14	19	18	13	10	10	7	7	12	17	22	21	20	20	17	17	19	21	24	24	20	18	18	15	21
15	17	21	26	16	5	7	8	6	2	2	1	2	5	3	1	4	9	7	5	6	0	-3	0	-1
16	0	-9	-10	-12	-10	-9	-10	-3	-6	-1	-2	-3	-3	0	1	3	6	8	8	6	6	5	4	4
17	1	1	-4	-4	-6	-5	-2	3	5	7	4	4	2	2	3	6	11	14	11	8	6	2	1	5
18	1	0	2	3	7	6	6	9	10	10	11	13	17	14	11	15	16	14	22	21	18	15	13	11
19	15	14	12	10	10	10	14	23	27	25	20	26	24	30	29	26	27	26	26	26	26	22	23	23
20	20	17	15	7	8	5	7	17	14	16	11	13	18	18	19	18	14	10	8	7	2	7	12	14
21	13	16	16	16	14	11	9	11	13	12	8	3	0	4	8	13	12	11	13	14	12	11	10	7
22	4	7	12	13	10	10	11	15	16	17	16	14	15	15	14	15	20	21	23	24	25	23	27	29
23	27	34	37	30	25	22	8	2	5	10	7	0	2	1	-1	0	2	3	4	6	0	3	8	14
24	12	11	8	4	2	2	5	7	7	4	1	0	2	8	12	14	16	18	20	18	14	13	11	13
25	11	8	10	6	-1	4	0	-8	-7	-1	-1	3	5	7	7	10	12	11	6	6	6	4	6	17
26	19	24	22	14	11	6	7	7	5	-2	-16	-8	-3	-8	-10	-3	-6	-12	-13	-13	-8	-11	-17	-12
27	-27	-21	-20	-20	-25	-28	-26	-17	-18	-16	-15	-11	-4	-2	-6	-6	-5	-3	-8	-14	-6	-2	-1	-6
28	-6	-4	-2	-4	-4	-9	-10	-8	-5	-8	-6	-1	0	2	3	3	0	-11	-15	-9	-4	-3	-2	0
29	-1	3	1	-5	-11	-12	-12	-12	-12	-6	-10	-12	-10	-5	-5	-5	-5	-9	-6	-8	-11	-6	-5	-2
30	5	2	0	0	-5	-11	-10	-2	-1	-6	-4	0	2	4	5	1	-2	0	2	5	7	3	3	-1
31	-9	-14	-10	-13	-15	-8	6	1	1	-1	-3	-8	-9	-10	-9	-11	-12	-14	-9	-9	-12	-13	-13	-9



PRINCIPAL MAGNETIC STORMS

JULY 1973

DATE 1973 MO. DA.	STORM TIME UT START	STORM TIME UT END MO. DA. HR	OBS.	GEO-MAG. LAT.	SUDDEN COMMENCEMENT TYPE	SUDDEN COMMENCEMENT AMPLITUDES D(°)	H(γ)	Z(γ)	C FIGURE DEGREE OF ACTIVITY	MAXIMAL ACTIVITY ON K-SCALE 0 TO 9 MO. DA.	3-HOUR PERIOD	K INDEX	RANGES D (°)	H (γ)	Z (γ)	STORM NUMBERS
07 08	0400	07 08 23	HYDE	7.6N	..	..	..	..	M	07 08	6	4	4	152	17	36
07 14	14--	07 16 10	NEWP	55.1N	..	..	..	..	M	07 15	2,8	5	32	139	121	37
										07 16	1					37
	22--	07 16 08	WITT	54.1N	..	..	..	..	MS	07 15	7	6	20	175	55	37
	15--	07 16 09	FRED	49.6N	..	..	..	..	M	07 16	1	5	23	90	40	37
	21--	07 16 09	MBOR	21.3N	..	..	..	..	-	07 15	7,8	4	--	--	--	37
										07 16	1	4				37
	1830	07 16 13	HYDE	7.6N	..	..	..	..	M	07 15	2,7	4	8	69	19	37
	21--	07 16 13	KGLN	57.3S	..	..	..	..	MS	07 15	7	6	--	--	--	37
07 15	00--	07 16 10	BOUL	49.0N	..	..	..	..	M	07 15	2	5	21	95	60	37
	00--	07 16 04	HRMN	33.3S	..	..	..	..	M	07 15	7,8	5	18	62	64	37
										07 16	1	5				37
	02--	07 16 14	GNAN	43.2S	..	..	..	..	M	07 15	5,7,8	5	14	80	80	37
07 19	0900	07 19 19	ALIB	9.5N	SC	- 0.4	11	- 3	M	07 19	4	4	3	59	14	38
	0530	07 20 13	HYDE	7.6N	..	..	..	..	M	07 19	4	4	6	63	26	38
	0900	07 19 19	ANNA	1.5N	SC	0.5	15	6	M	-- --	-	-	3	68	27	38
	0900	07 19 19	TVAN	1.1S	SC	0.0	16	17	M	-- --	-	-	2	82	48	38
07 23	0030	07 23 23	HYDE	7.6N	..	..	..	..	M	07 23	2,4	3	4	83	21	39
	01--	07 25 --	KGLN	57.3S	..	..	..	..	M	07 23	7,8	4	--	--	--	39
07 25	05--	07 28 00	PMOR	18.6S	..	..	..	..	M	07 26	4,5,8	5	4	140	50	40
										07 27	1	5				40
07 26	02--	07 31 19	COLL	64.6N	..	..	..	..	MS	07 26	4	7	197	1570	1240	
	03--	07 28 14	SITK	60.0N	..	..	..	..	S	07 26	4	8	60	1160	620	40
	00--	07 31 05	NEWP	55.1N	..	..	..	..	M	07 26	3,4,5,6	5	29	171	268	40
										07 27	1,2,3					40
	03--	07 28 03	WITT	54.1N	..	..	..	..	M	07 26	5,6,7,8	5	30	150	95	40
										07 27	1,6,7	5				40
	03--	07 31 15	FRED	49.6N	..	..	..	..	M	07 26	8	5	29	100	75	40
	03--	07 28 19	BOUL	49.0N	..	..	..	..	M	07 26	4	5	21	105	95	40
	03--	08 02 16	TUCS	40.4N	..	..	..	..	M	07 26	4,8	5	15	155	30	40
										07 27	1,3	5				40
										07 29	2	5				40
										07 31	1,2,3,4	5				40
										08 01	4	5				40
										08 02	2,3,5	5				40
	0300	07 27 12	SJUA	29.9N	..	..	..	..	M	07 26	3	4	6	76	27	40
	00--	07 27 21	MBOR	21.3N	..	..	..	..	-	07 26	8	4	--	--	--	40
										07 27	7	4				40
	0300	07 27 21	HYDE	7.6N	..	..	..	..	M	07 27	7	5	4	102	24	40
	0303	07 27 17	GUAM	4.0N	..	..	..	..	M	07 26	8	5	0	100	20	40
	11--	07 27 21	HRMN	33.3S	..	..	..	..	M	07 26	8	5	17	67	64	40
	03--	07 31 18	GNAN	43.2S	..	..	..	..	MS	07 26	4,5	6	20	90	130	40
										07 31	5	6				40
	03--	07 28 --	KGLN	57.3S	..	..	..	..	MS	07 26	8	6	--	--	--	40
07 29	0200	07 30 20	HYDE	7.6N	..	..	..	..	M	07 29	2	4	4	62	17	41
07 30	23--	07 31 17	SITK	60.0N	..	..	..	..	MS	07 31	4	6	80	370	470	41
	10--	07 31 17	WITT	54.1N	..	..	..	..	M	07 30	6	5	20	130	55	41
										07 31	1,2	5				41
	0450	07 31 16	GUAM	4.0N	..	..	..	..	M	07 31	2	5	0	80	20	41
07 31	0545	08 01 16	NEWP	55.1N	SC	2	40	--	M	07 31	3,4	5	37	126	159	41
										08 01	4					41
	00--	07 31 18	BOUL	49.0N	..	..	..	..	M	07 31	4	5	24	--	65	41
	0545	07 31 19	HYDE	7.6N	SC	- 0.5	+22	- 2 *	M	07 31	2,3,4	4	5	112	20	41
	0546	07 31 16	PMOR	18.6S	SC	+ 0.2	+20	+13	M	07 31	2	5	2	50	40	41
	0545	08 01 18	KGLN	57.3S	SC	--	--	--	M	07 31	2	5	--	--	--	41

Reports were received from the following observatories:

College Sitka, Witteveen Newport, Fredericksburg Boulder, Tucson, San Juan M'Bour, Alibag Hyderabad, Guam Annamalainagar, Trivandrum Apia, Port Moresby Hermanus, Gnangara Port-aux-Francais

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

JULY 1973

PRELIMINARY REPORT ON RAPID VARIATIONS (by Dr. A. Romana)

The meaning of the station symbols is given in the IAGA-Bulletins nr. 12 and 32. Times of ssc, si and bay-commencements are mean values. If given by ten or more stations they are underlined.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

19 0859 A: LG TI KS; B: IK TW; C: SZ (si: B: FU LM; C: PP)

31 0546 A: TI HU AC; B: MA KS PP TW KG DU; C: IK KA (si: A:SO; B: SI WN SS SZ LM b: B: MB)

Sudden impulses found in the magnetograms (si)

none

Rapid variations in form of bays (b, bs, bp, bps)

10 0055 bs: A: KS - bp: A: FU CI SZ TW; B: SO WN MA IK EB HU LM; C: NI - bps: A: LG AC; B: MB

13 2123 bs: A: SO NU - bp: B: WN WI MA FU IK EB CI LM - bps: A: TI

17 0047 b: B: HU - bp: A: NU TW; B: SO WI MA FU IK - bps: A: CI AC; B: WN EB SZ MB LM (si: A: LG)

21 0100 bs: B: MB - bp: B: SO AC TW; C: IK EB - bps: B: SZ LM

21 2352 bs: C: NI - bp: A: NU FU LG TI; B: SO WN WI IK EB SZ LM

Giant pulsations (pg)

01	0500 - 1050	KS	08	1200 - 1230	FU
01	1210 - 1225	FUA	16	0710 - 0730	FU
01	1430 - 1445	FUA	22	0020 - 0030	NU (110^s 8γ)
05	1405 - 1440	FU			

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

10	1350 - 1407	SZ HU	17	0502 - 0518	SS
13	1645 - 1657	SZ	28	0815 - 0829	SZ

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

JULY 1973

North Atlantic

JUL. 1973	WHOLE DAY INDICES NORTH ATLANTIC	ADVANCE FORECASTS (JC-REPORTS) FOR WHOLE DAY	NORTH ATLANTIC								GEOMAGNETIC INDICES		
			6-HOURLY QUALITY FIGURES				SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF				K_{FR}		A_{FR}
			00 TO 06	06 TO 12	12 TO 18	18 TO 24	02	08	14	20	HALF DAY (1)	HALF DAY (2)	OBSERVED
01	6o	6	6-	5o	7-	6o	5	5	6	6	3	3	17
02	6o	6	6o	6+	6o	6o	6	6	6	6	3	3	12
03	6o	7	6o	6+	6-	6+	6	6	6	6	3	2	11
04	6+	7	7-	6o	6+	7-	6	6	7	7	1	2	4
05	6+	6	7-	6+	6o	6+	7	7	7	7	1	1	4
06	6+	6	7-	6+	6o	7-	7	7	7	7	1	1	3
07	6+	5	7-	6+	6o	7-	7	7	7	7	1	1	3
08	6+	5	6+	7-	6o	7-	7	6	7	6	3	3	15
09	6+	5	7-	7-	6o	6+	6	6	6	6	2	2	8
10	6+	5	6+	7-	6o	6o	6	6	6	6	2	2	7
11	7-	6	7-	6+	7-	7-	6	6	6	7	2	2	8
12	7-	7	7-	7-	7-	7-	7	6	6	7	1	2	6
13	7-	7	7-	6o	7-	7-	6	6	6	6	2	2	8
14	7-	6	7-	7-	6o	7-	6	6	6	6	2	2	10
15	6o	5	7-	5+	6o	6+	6	5	6	5	(4)	(4)	23
16	6-	5	6o	5o	7-	6+	5	5	6	6	3	2	13
17	6+	6	6+	6o	7-	6+	6	6	6	7	2	1	5
18	7-	6	6+	6+	7-	7-	7	6	6	6	2	2	7
19	7-	6	7-	6+	7-	7-	7	7	6	7	3	3	11
20	7-	6	7-	7-	7-	7-	6	6	6	6	3	2	11
21	6o	6	6-	6o	6o	6+	7	7	6	6	2	1	6
22	6+	6	7-	6+	6o	6+	7	7	7	7	2	2	6
23	6+	7	7-	7-	6o	6+	7	7	6	6	3	3	13
24	6+	7	7-	7-	6o	6+	6	6	6	6	2	2	7
25	6+	7	6+	6+	6o	7o	6	6	6	6	3	2	10
26	6+	6	7-	6+	6o	6-	6	6	6	5	(4)	(4)	28
27	6-	6	6-	5o	6o	6o	5	4	4	5	(4)	(4)	25
28	6+	6	6o	6o	6+	6+	5	5	6	6	3	3	15
29	6-	6	6-	4+	6+	6o	6	5	6	5	(4)	3	20
30	6-	6	6o	5o	6-	6+	5	5	6	5	(4)	3	19
31	5+	7	6-	4+	5+	6o	5	5	5	5	(5)	2	26

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

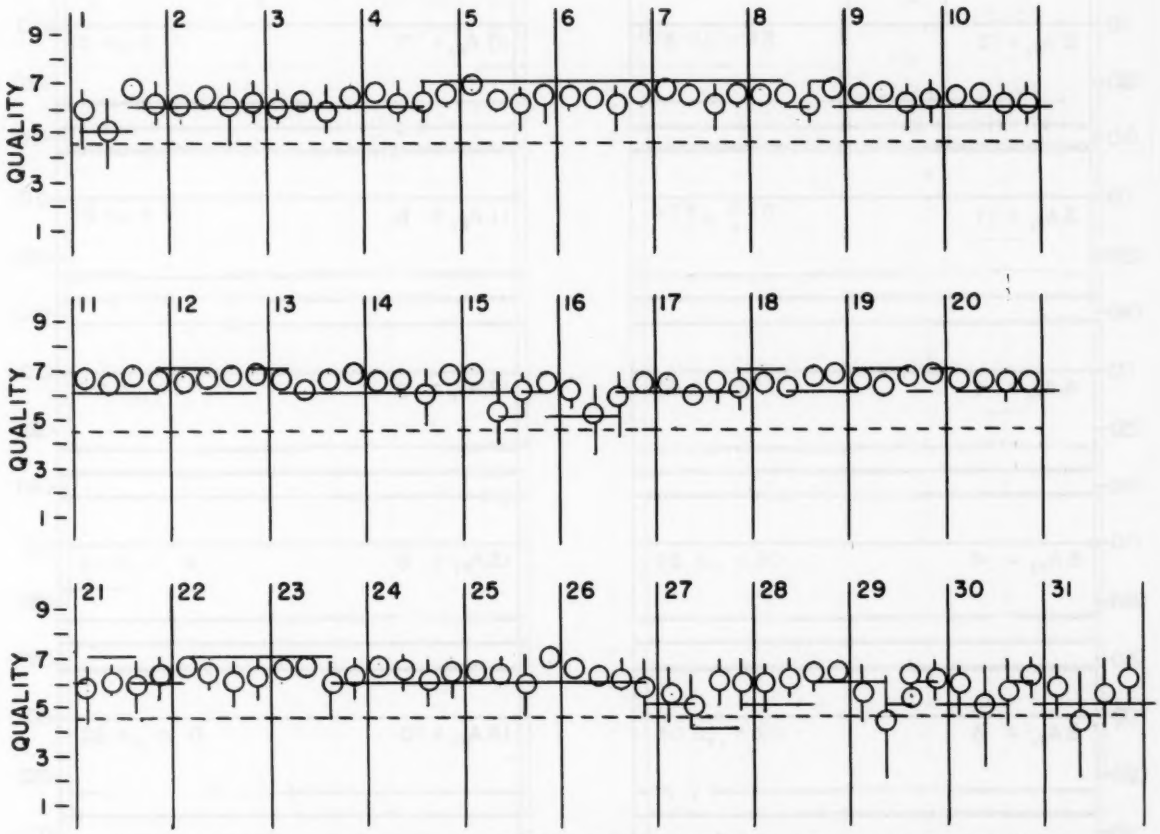
JULY 1973

North Atlantic

– Short term forecast
o Quality figure

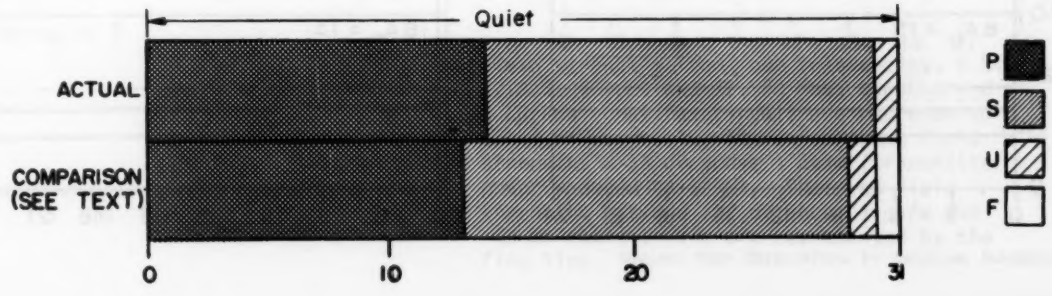
| range of reports

Day



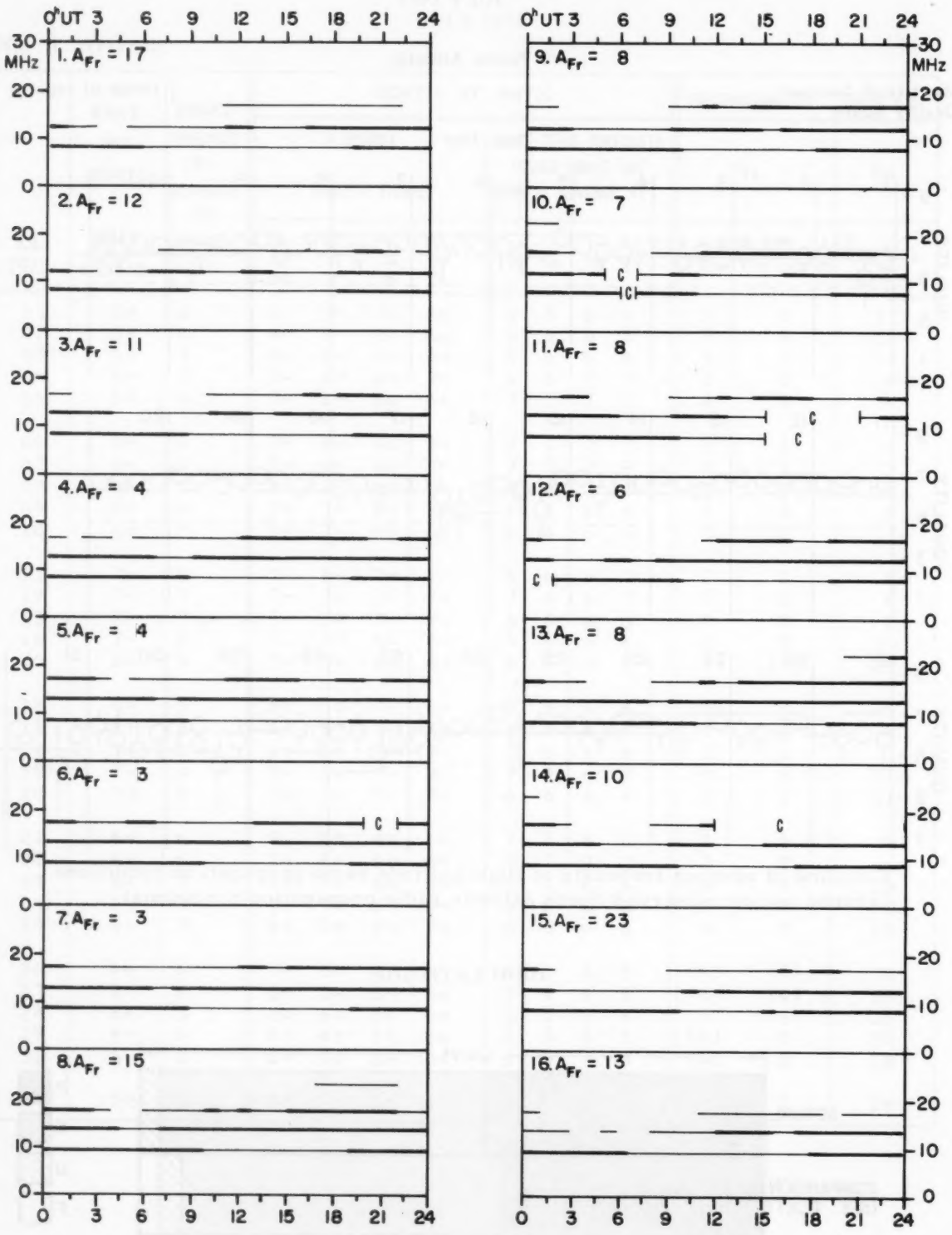
Outcome of advance forecasts of High Latitude radio propagation conditions (scored against observed North Atlantic radio propagation conditions)

HIGH LATITUDE



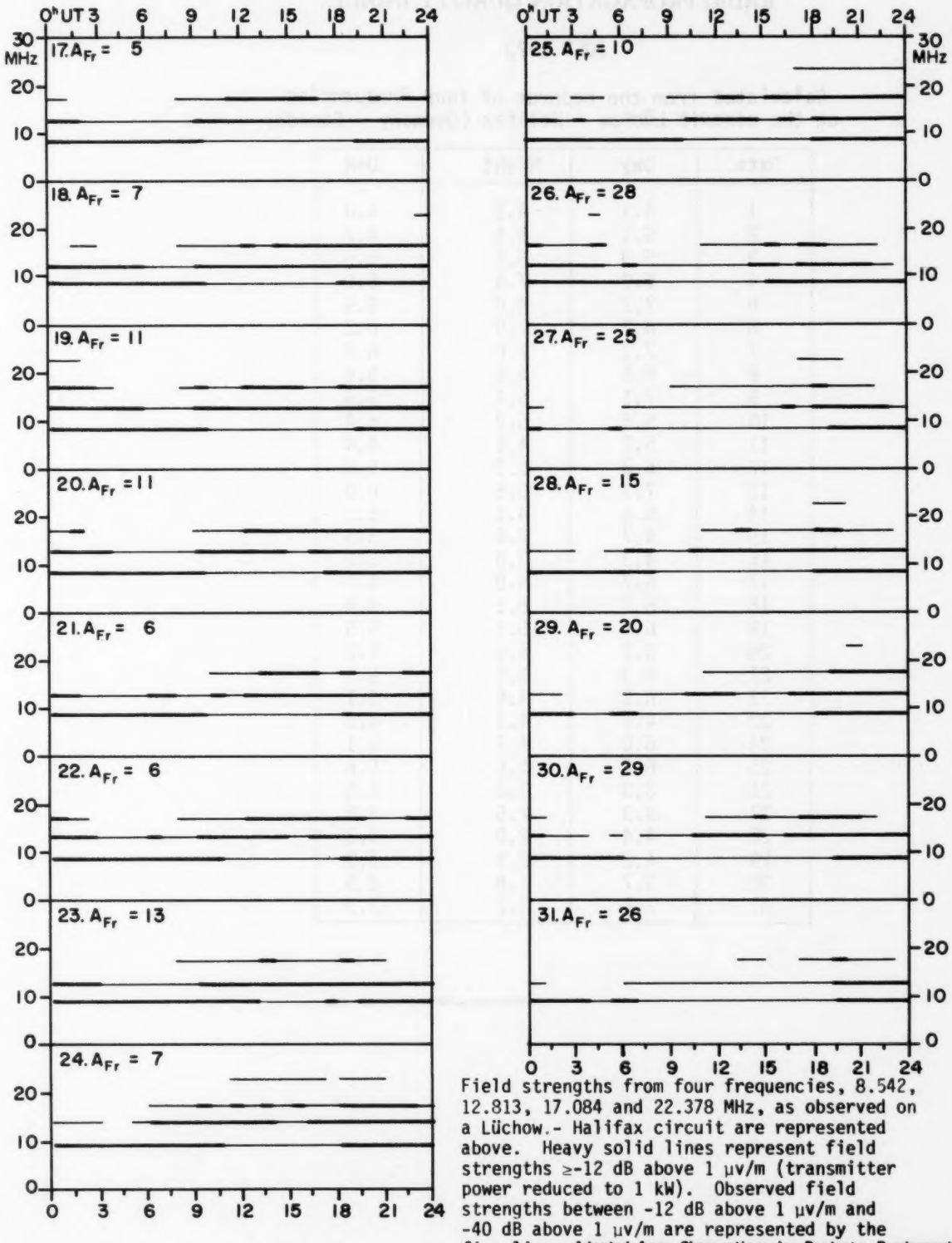
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JULY 1973



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JULY 1973



Field strengths from four frequencies, 8.542, 12.813, 17.084 and 22.378 MHz, as observed on a Lüchow.- Halifax circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line. **Adapted from Observations by Deutsche Bundespost**

RADIO PROPAGATION QUALITY INDICES

JULY 1973

Calculated from the records of four frequencies
on the circuit Lüchow - Halifax (Germany - Canada)

Date	Day	Night	D+N
1	4.1	4.3	4.0
2	5.1	5.6	4.7
3	5.9	6.1	5.5
4	6.9	7.4	6.5
5	7.2	8.0	6.9
6	6.7	7.0	6.2
7	7.1	7.0	6.4
8	6.5	4.8	5.4
9	7.1	5.7	5.9
10	5.6	5.9	5.4
11	5.2	4.5	4.4
12	6.3	6.3	5.8
13	7.2	5.8	6.0
14	6.6	4.6	5.2
15	4.7	2.4	3.5
16	4.3	3.8	3.8
17	5.7	5.0	5.1
18	6.7	6.1	5.9
19	6.5	5.5	5.5
20	6.2	4.8	5.2
21	6.3	5.5	5.5
22	6.2	4.5	5.1
23	4.7	4.1	4.3
24	6.0	4.7	5.1
25	6.3	5.6	5.6
26	3.3	1.2	2.5
27	3.3	2.5	2.9
28	4.4	2.0	3.3
29	4.2	2.9	3.3
30	3.7	1.8	2.9
31	2.5	2.2	2.3

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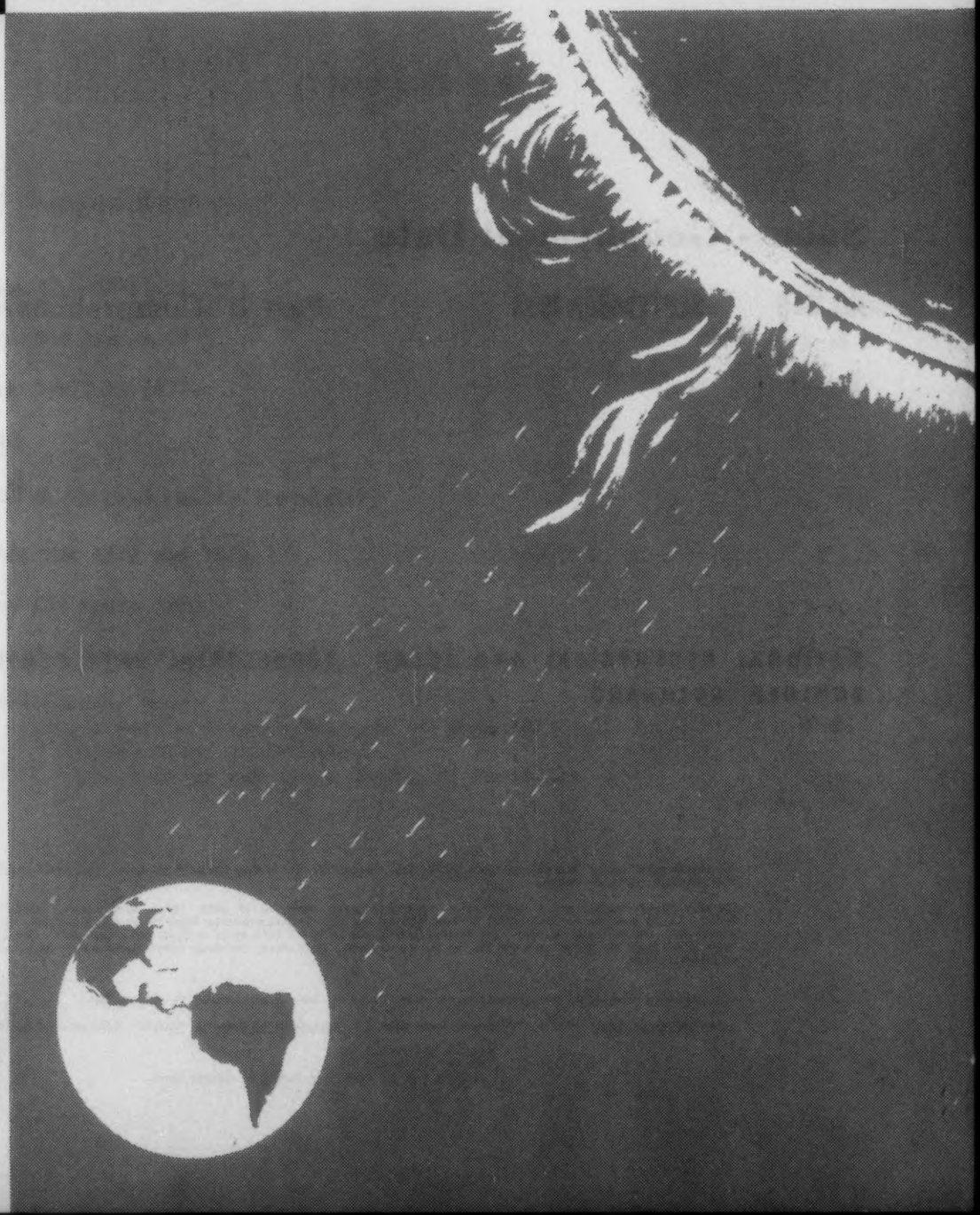
SOLAR-GEOPHYSICAL DATA (comprehensive reports)

U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Environmental Data Service

SEPTEMBER 1973



NUMBER 349-PART II
DATA FOR
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FEBRUARY 1973
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Frederick B. Dent, Secretary
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Solar - Geophysical Data

NO. 349 SEPTEMBER 1973

Part II (Comprehensive Reports)

DATA FOR
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SOLAR - GEOPHYSICAL DATA

No. 349

Issued in two parts

Hope I. Leighton, Editor

J. Virginia Lincoln, Director
Solar - Terrestrial Data Services Division

CONTENTS

Part I (Prompt Reports)

	Page
Index for 1972 and 1973	2
Data for August 1973	3-22
Data for July 1973	23-122

Part II (Comprehensive Reports)

Index for 1972 and 1973	2
Data for March 1973	3-70
Data for February 1973	71-78
Miscellaneous Data Cosmic Rays - Neutron Monitors -- June 1973 Deep River Daily Values Deep River and Alert Charts of Variation	79-81

INDEX FOR 1972 - 1973 DATA PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1972					1973							
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
A.	Solar and Interplanetary Phenomena													
A.1	Sunspot Drawings	338	339	340	341	342	343	344	345	346	347	348	349	
A.2a	Zürich Provisional Relative Sunspot Numbers R_Z	337	338	339	340	341	342	343	344	345	346	347	348	349
A.2b	Zürich Final Sunspot Numbers R_Z	343	343	343	343	343								
A.2c	American Relative Sunspot Numbers R_A'	337	338	339	340	341	342	343	344	345	346	347	348	349
A.3a	Mt. Wilson Magnetograms	338	339	340	341	342	343	344	345	346	347	348	349	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	338	339	340	341	342	343	344	345	346	347	348	349	
A.4	$H\alpha$ Spectroheliograms	338	339	340	341	342	343	344	345	346	347	348	349	
A.5	Calcium Plage Drawings - McMath (or Catania)	338	339	340	341	342	343	344	345	346	347	348	349	
A.5a	Calcium Plage (McMath) and Sunspot Regions	338	339	340	341	342	343	344	345	346	347	348	349	
A.5b	McMath Daily Calcium Plage Index	338	339	340	341	342	343	344	345	346	347	348	349	
A.6	$H\alpha$ Synoptic Charts											348	349	
A.7b	Coronal Line Emission	338	339	340	341	342	343	344	345	346	347	348	349	
A.7c	White-Light Corona (NRL OSO-7, 1971-083A)	338	339	340	341	342	343	344	345	346	347	348	349	
A.7d	Solar EUV Spectroheliogram Fe XV 284 Å (GSFC OSO-7, 1971-083A)	338	339	340	341	342	343	344	345	346	347	348	349	
A.7e	Solar XUV Coronograms (NRL OSO-7, 1971-083A)			340	341	342	343	344	345	346	347	348	349	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.8ac	2800 MHz - Daily Values of Adjusted Solar Flux (ARO-Ottawa)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.8g	15400, 8800, 4995, 2695, 1415, 606, 410, 245 MHz Adj. Solar Flux (AFCRL)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.9a	9.1 cm Radio Maps of the Sun (Stanford)	338	339	340	341	342	343	344	345	346	347	348	349	
A.9b	21 cm Radio Maps of the Sun (Fleurs)	338	339	340	341	342	343	344	345	346	347	348	349	
A.9c	8.6 mm Radio Maps of the Sun (Prospect Hill)	338	339	340	341									
A.10a	169 MHz - Interferometric Observations (Nançay)	337	338	340	340	341	343	344	345	346	347	348	349	
A.10c	21 cm East-West Solar Scans (Fleurs)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.10d	43 cm East-West Solar Scans (Fleurs)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.11aa	Solar X-ray Radiation (Explorer 37 or 44)	338	339	340	341	342	343	344	345	346	347	348	349	
A.11ab	Solar X-ray Radiation (Explorer 37 or 44) Graphs	342	343	344	345	346	347	348	349					
A.11e	Solar X-ray Spectroheliograms (OSO-5)	338	339	340	342	---	---	---	---	---	---	---	---	---
A.11f	Solar X-ray Spectroheliograms (GSFC OSO-7, 1971-083A)					342	343	344	345	346	347	348	349	
A.12aa	Solar Protons (Explorer 41 or 43) Daily hourly values	342	343	345	345	346								
A.12ab	Solar Protons (Explorer 41 or 43) Graphs	342	343	345	345	346								
A.12ba	Cosmic Ray Protons (Pioneers 6 & 7)	337	---	339	340	---	342	---	---	---	346	347		
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.12c	Cosmic Ray Protons (ATS-1)	337												
A.13a	Solar Wind (Pioneers 6 & 7)	337	---	339	340	341	342	---	---	---	346	347	348	349
A.13c	Solar Wind (Vela 6B)													
A.17	Interplanetary Magnetic Field (Pioneer 8)	---	---	339	340	---	342	---	---	---	346	347		
A.17	Interplanetary Magnetic Field (Pioneer 9)	337	338	339	340	341	342	343	344	345	346	347	348	349
A.17c	Inferred IP Magnetic Field	348	348	348	348	348	348	348	348	348	348	348	348	349
A.18	Interplanetary Electric Field (Pioneer 8)	---	---	339	340	---	342	---	---	---	346	347		
A.18	Interplanetary Electric Field (Pioneer 9)	337	338	339	340	341	342	343	344	345	346	347	348	349
B.	Ionospheric (and Radio Wave Propagation) Phenomena													
B.51ca	High Latitude Quality Figures and Forecasts	338	339	340	341	342	343	344	345	346	347	348	349	
B.51cb	High Latitude Comparison Graphs	338	339	340	341	342	343	344	345	346	347	348	349	
B.52	Graphs of Transmission Frequency Range	338	339	340	341	342	343	344	345	346	347	348	349	
B.53	Quality Figures based on Frequency Ranges	338	339	340	341	342	343	344	345	346	347	348	349	
C.	Flare-Associated Events													
C.1a	Optical Observations Flares	337	338	339	340	341	342	343	344	345	346	347	348	349
C.1ba	Optical Observations Flares (Including Standardized Data)	342	343	344	345	346	347	348	349					
C.1d	Flare Patrol Observations	337	338	339	340	341	342	343	344	345	346	347	348	349
C.1e	Flare Indices (by day)	342	343	344	345	346	347	348	349					
C.1f	Flare Index by Region	343	344	345	346	347	348	349						
C.3	Solar Radio Waves - Fixed Frequencies - Outstanding Occurrences	342	343	344	345	346	347	348	349					
	Solar Radio Waves - Fixed Frequencies - Selected	337	338	339	340	341	342	343	344	345	346	347	348	349
C.3t	43.25, 80 and 180 MHz Selected Bursts (Culgoora)	---	---	---	---	342	344	344	345	346	347	348	349	
C.4aa	10-2000 MHz - (Fort Davis)	338	339	340	341	342	343	344	345	346	347	348	349	
C.4b	7.6-80 MHz - (University of Colorado)	338	339	340	341	342	343	344	345	346	347	348	349	
C.4d	8-8000 MHz - (Culgoora)	338	339	340	341	342	343	344	345	346	347	348	349	
C.4e	30-1000 MHz - (Weissenau, G.F.R.)	338	339	340	341	342	343	344	345	346	347	348	349	
C.4f	24-48 MHz - (AFCRL, Sagamore Hill)	338	339	340	341	342	343	344	345	346	347	348	349	
C.5b	Solar X-ray Radiation (Explorer 35)													
C.5c	Solar X-ray Radiation (Explorer 44)	338	339	340	341	342	343	344	345	346	347	348	349	
C.6	Sudden Ionospheric Distrubances	338	339	340	341	342	343	344	345	346	347	348	349	
D.	Geomagnetic and Magnetospheric Phenomena													
D.1a	Geomagnetic Indices Ci, Cp, Kp, Ap - Selected Days	338	339	340	341	342	343	344	345	346	347	348	349	
D.1b	27-Day Chart of Kp Indices for Year	342	342	342	342	342								
D.1c	27-Day Chart of C9 for Year	342	342	342	342	342								
D.1d	Principal Magnetic Storms	338	339	340	341	342	343	344	345	346	347	348	349	
D.1e	Reduced Magnetograms	342	343	---	345	346	---	348	349					
D.1f	Sudden Commencement and Solar Flare Effects	338	339	340	341	342	343	344	345	346	347	348	349	
D.1g	Equatorial Indices Dst										347	348	349	
F.	Cosmic Rays													
F.1a	Cosmic Ray Neutron Counts (Deep River)						346	346	346	347	348	349	349	
F.1b	Cosmic Ray Neutron Counts (Climax)													
F.1c	Cosmic Ray Neutron Counts (Dallas)	338	339	340	341	343	343	344	345	346	347	348	349	
F.1d	Cosmic Ray Neutron Counts (Churchill)	348	348	348	348	348	349							
F.1e	Cosmic Ray Neutron Counts (Alert)						346	346	346	347	348	349		
F.1f	Cosmic Ray Neutron Counts (Calgary)	338	339	340	341	342	343	344	345	346	347	348	349	
F.1g	Cosmic Ray Neutron Counts (Sulphur Mountain)	338	339	340	341	342	343	344	345	346	347	348	349	
F.1h	Cosmic Ray Neutron Counts (Thule)									346	347	348	349	
H.	Miscellaneous													
H.60	IUWDS Alert Decisions	337	338	339	340	341	342	343	344	345	346	347	348	349
H.62	Abbreviated Calendar Record	343	344	345	346	347	348	349						

MARCH 1973 DATA

Contents

	Page
Solar Flares	
Confirmed Solar Flares	4-20
Flare Indices	20
Unconfirmed Solar Flares	21-25
No-Flare-Patrol Chart	26
Solar Radio Waves	
Worldwide Outstanding Occurrences at Fixed Frequencies	27-49
Solar X-ray Radiation	
Naval Research Laboratory - Explorer 44	50-65
Solar Proton Monitoring	
(Not available at time of publication)	
Magnetograms of Geomagnetic Storm	66-70

For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

SOLAR FLARES
Confirmed

MARCH 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
532 MITK	01	0029	0036	0030	N06	E05	.244	12246	1.4	7	-N		C	0030	.93	1.00			D 4
533 VORO	01	0102	0112D	0106	N09	W03	.284	12246	28.8	10D	-B		C	0106	1.11	1.13		64	DJL 3
GRP47534	01	0136	0157	0141	N09	W03	.284	12246	28.8	21	-N				.96				4 3 3 5
VORO	01	0117	0141D	0125	N09	W03	.284	12246	28.8	24D	-B		C	0125	1.02	1.04		62	DJL
MITK	01	0132E	0154	0137	N09	W03	.284	12246	28.8	22D	-N		C	0137	1.13	1.20			D
MANI	01	0140	0153	0145	N09	W03	.284	12246	28.8	13	-F	2		0145	.41	.43			
KODA	01	0150E	0204D		N08	W03	.267	12246	28.9	14D	-N		P	0150	1.34	1.30			E
	01	0518	0558	NO FLARE PATROL															
GRP47535	01	0631	0638	0634	S13	W36	.586	12242	26.6	7	--N				.77				2 2 2 5
MITK	01	0631	0638	0635	S13	W35	.572	12242	26.6	7	-N		C	0635	1.13	1.40			D
MANI	01	0631	0637	0633	S13	W36	.586	12242	26.6	6	-N	2		0633	.41	.51			
7 STATIONS REPORTING GROUP 47537. 0 STATIONS OBSERVING AND NOT REPORTING.																			
GRP47537	01	0828	0858	0835	N08	W06	.282	12246	28.9	30	1B				2.99				6 6 6 7
ARCE	01	0825	0839	0835	N07	W06	.266	12246	28.9	14	1N		C	0834	3.06	3.20			
MANI	01	0828	0855D	0834	N07	W07	.273	12246	28.8	27D	1B	2		0834	4.13	4.32			
MEUD	01	0828E	0900	0836	N07	W07	.273	12246	28.8	32D	1N		C	0836	2.08	2.10			E
CANR	01	0828	0850	0835	N09	W05	.292	12246	1.0	22	1B		V	0836	3.00	3.50			
CRON	01	0829E	0907	0837	N08	W05	.276	12246	1.0	38D	1N		V	0837	2.20				
CATA	01	0830	0915D	0835	N07	W06	.266	12246	28.9	45D	1B	1		0835	3.48	3.60		(209)	Z
47537	01	0839	0857	0848	N07	W07	.273	12246	28.8	18	*1F				3.73				2 2 2 8
WEND	01	0831E	0858		N07	W07	.273	12246	28.8	27D	2N		P		7.22				
ARCE	01	0846	0855	0848	N07	W06	.266	12246	28.9	9	-F		C	0848	.23	.23			
8 STATIONS REPORTING GROUP 47538. 2 STATIONS OBSERVING AND NOT REPORTING.																			
GRP47538	01	1115	1204	1122	N08	W07	.288	12246	28.9	49	1B				4.19				4 4 4 7
MONT	01	1111	1142D	1124	N08	W07	.288	12246	28.9	31D	1B		C	1124	5.67				H
MEUD	01	1117	1200	1124	N06	W08	.266	12246	28.9	43	1B		C	1124	3.09	3.10			FH
CANR	01	1117	1119D	1119	N09	W06	.297	12246	1.0	2D	1B		V		3.50	3.50			
CAPS	01	1116E	1207D		N08	W07	.288	12246	28.9	49D	1B	2	P	1123	4.50	4.70		(385)	CH
47538	01	1119E	1209	1140	N07	W09	.289	12246	28.8	50	*1B				2.94				4 4 4 9
WEND	01	1119E	1204		N07	W09	.289	12246	28.8	45D	2N		P		8.25				
ARCE	01	1135E	1205		N07	W09	.289	12246	28.8	30D	-B		C	1135	1.05	1.10			B
CATA	01	1140E	1148D	1140	N07	W08	.281	12246	28.9		-B	3		1140	1.16	1.20		(295)	
UPIC	01	1142E	1219D		N08	W09	.304	12246	28.8	37D	-B		P	1142	1.29				F
GRP47539	01	1216	1306	1222	N07	W09	.289	12246	28.8	50	1B				3.16				2 1 1 9
ZURI	01	1216	1306	1222	N07	W09	.289	12246	28.8	50	1B		C	1222	3.16				
CATA	01	1237E	1305D	1242	N03	W12	.271	12246	28.6	28D	-N	3		1242	1.16	1.20		(158)	
	01	1954	2030	NO FLARE PATROL															
GRP47541	02	0441	0454	0445	N06	W13	.318	12246	1.2	13	--N				.39				2 2 2 5
MANI	02	0440	0455	0445	N07	W15	.353	12246	1.1	15	-N	1		0445	.41	.44			
TEHR	02	0442	0452	0445	N05	W11	.283	12246	1.4	10	-N	4	C		.36				DE
	02	1110	1118	NO FLARE PATROL															
	02	1124	1125	NO FLARE PATROL															
542 ATHN	02	1128	1136D	1131	N11	W21	.465	12246	28.9	8D	--F	2	C		.33				DE 3
	02	1209	1220	NO FLARE PATROL															
	02	1243	1248	NO FLARE PATROL															
543 RAHY	02	1358E	1430D	1400	N14	W06	.375	12246	2.1	32D	--F	3	V		.48				DE 2
	02	1444	1454	NO FLARE PATROL															
	02	1521	1532	NO FLARE PATROL															
	02	1555	1618	NO FLARE PATROL															
	02	1629	1942	NO FLARE PATROL															
544 PALE	02	1834E	1901	1835U	N08	W24	.475	12246	1.0	27D	--B	2	C		.63				F 1
	02	1953	2123	NO FLARE PATROL															
	02	2140	2155	NO FLARE PATROL															

Note: Catania and Capri-S express Maximum Intensities in percent of the local undisturbed chromosphere instead of percent of the local continuum. Parentheses are used to indicate this difference.

SOLAR FLARES
Confirmed

MARCH 1973

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP47545	02	2245	2257	2247	N07	W29	.533	12246	28.8	12	--N				.74				2 2 2 4
VORQ	02	2245	2259	2247	N05	W29	.521	12246	28.8	14	-B		C	2247	1.11	1.28		62	EJL
PALE	02	2245	2255	2247	N09	W28	.534	12246	28.8	10	-F	2	C		.36				F
GRP47546	03	0207	0217	0212	N07	W29	.533	12246	28.9	10	--F				.91				3 3 3 6
PALE	03	0206	0219	0214U	N08	W29	.540	12246	28.9	13	-F	2	C		.63				F
VORQ	03	0206	0220D	0209	N06	W29	.527	12246	28.9	14D	-N		C	0209	1.29	1.49		58	EL
CRON	03	0208	0213		N07	W28	.520	12246	1.0	5	-F		V		.80				
GRP47547	03	0550	0558	0552	N11	W27	.537	12246	1.2	8	--N				.64				2 2 2 4
ATHN	03	0550	0556	0552	N08	W26	.487	12246	1.3	6	-N	1	C		.66				DE
MANI	03	0552E	0600	0552	N15	W28	.582	12246	1.1	8D	-N	1		0552	.62	.77			
	03	1445	1629	NO FLARE PATROL															
	03	1637	1825	NO FLARE PATROL															
	03	1831	1837	NO FLARE PATROL															
	03	1843	2149	NO FLARE PATROL															
548 RAMY	03	2019	2030	2022	N05	W34	.589	12246	1.3	11	--F	3	C		.65				DE 1
	03	2154	2224	NO FLARE PATROL															
	03	2225	2228	NO FLARE PATROL															
549 RAMY	04	1435E	1450	1435U	N03	W43	.696	12246	1.4	15D	--F	4	V		.57				DE 3
550 RAMY	04	1941	1944D	1943U	N07	W49	.776	12246	1.1	3D	--F	2	C		.46				DE 3
GRP47554	05	1455E	1515	1455	S15	E65	.899	12261	10.5	20	-N				1.45				3 3 3 3
CAPS	05	1455E	1515D		S15	E65	.899	12261	10.5	20D	-B	3	V	1458	.60			(260)	C
RAMY	05	1455E	1456D	1455U	S16	E66	.906	12261	10.6	1D	-N	2	C		.65				DE
MEND	05	1455E	1512D		S14	E64	.892	12261	10.4	17D	1N		V		3.09				
555 RAMY	05	1629	1648	1637	S15	E65	.899	12261	10.6	19	--F	3	C		.37				DE 3
556 RAMY	05	1745	1801	1750	S17	E61	.868	12261	10.3	16	--F	3	C		.28				DE 1
	05	1922	1930	NO FLARE PATROL															
557 PALE	05	2204E	2219	2204U	S15	E60	.859	12261	10.4	15D	-N	2	V		.62				F 1
558 CULG	05	2222E	2310D	2222	S16	E61	.868	12261	10.5	48D	1F		P	2222	1.55	3.70			5
GRP47560	06	0148	0313		S16	E59	.851	12261	10.5	85	-N				1.39				2 2 2 7
KODA	06	0148E	0309	0233	S17	E58	.842	12261	10.4	81D	-B		P	0148	1.94	2.00	1.76		E
MITK	06	0150E	0225D	0210	S15	E60	.859	12261	10.6	35D	-F		C	0210	.62	1.20			D
MITK	06	0301	0317	0304	S15	E60	.859	12261	10.6	16	-F		C	0304	.83	1.60			D
GRP47563	06	0819	0825	0822	N08	W56	.847	12246	2.1	6	--F				.25				2 2 2 5
MONT	06	0817	0820	0818	N08	W56	.847	12246	2.1	3	-F		C	0818	.21				
CATA	06	0820	0830	0825	N07	W56	.845	12246	2.1	10	-N	1		0825	.29	.54		(166)	
GRP47564	06	0919	1015	0924	S18	E53	.795	12261	10.4	56	-N				1.14				6 6 6 7
CRON	06	0918	0945	0923	S17	E52	.784	12261	10.3	27	-N		V	0923	.80				
MANI	06	0919E	0935	0922	S16	E51	.773	12261	10.2	16D	-N	1		0922	1.13	1.77			
CATA	06	0920	1000D	0925	S17	E54	.804	12261	10.4	40D	-B	1		0925	.58	.97		(219)	
KHAR	06	0920E	1015	0927	S26	E55	.824	12261	10.5	55D	1N		V	0925	2.84	5.10	2.30		D
ATHN	06	0921E	0938D	0921U	S17	E54	.804	12261	10.4	17D	-N	2	C		.68				DE
TEHR	06	0924E	0928D	0924U	S15	E53	.793	12261	10.4	4D	-N	2	V		.83				F
47564	06	0940	1011	0949	S16	E55	.813	12261	10.5	31	*-B				.62				2 2 2 6
MONT	06	0940E	1011	0949	S17	E57	.833	12261	10.7	31D	-B		C	0949	.72				
MEUD	06	0948E	0955D		S15	E53	.793	12261	10.4	7D	-N		C	0948	.52	.90			D
GRP47566	06	1323	1415	1339	S17	E53	.794	12261	10.5	52	-F				.64				6 4 4 6
RAMY	06	1323E	1350D	1326U	S15	E52	.783	12261	10.5	27D	-F	4	V		.52				DE
CATA	06	1335	1420	1345	S16	E52	.783	12261	10.5	45	-N	1		1345	.58	.93		(186)	
CAPS	06	1336E	1413D		S20	E56	.825	12261	10.8	37D	-F	3	S	1338	.70	1.20			C
MEUD	06	1340E	1347D		S15	E51	.772	12261	10.4	7D	-F		C	1341	.62	1.00			CE
ATHN	06	1346E	1412	1346U	S17	E52	.784	12261	10.5	26D	-N	2	C		.66				DE
CAPF	06	1353	1358		S16	E52	.783	12261	10.5	5	1N		P	1355	3.53	6.49			
GRP47567	06	1520E	1538	1526	S17	E51	.773	12261	10.5	18	--F				.43				2 2 2 4
ATHN	06	1520E	1538	1526	S17	E51	.773	12261	10.5	18D	-N	1	V		.33				DE
RAMY	06	1520E	1538	1525U	S16	E50	.762	12261	10.4	18D	-F	4	V		.52				DE

SOLAR FLARES
Confirmed

MARCH 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
					APPROX.		CENTRAL	MCMATH PLAGE	CMP										
	DATE MAR	START	END	MAX. PHASE	LAT.	MER. DIST	DISTANCE	REGION	DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
GRP47568	06	1949	2030	1955	S16	E48	.740	12261	10.4	41	-N		C		.78				3 3 2 3
PALE	06	1948	2020	1954	S16	E48	.740	12261	10.4	32D	-N	3	C		.81				DE
BOUL	06	1950	2030	1955U	S16	E48	.740	12261	10.4	40	-N	3	V	1955		1.40			
RAMY	06	1952E	2013D	1955U	S16	E48	.740	12261	10.4	21D	-B	3	V		.74				DE
GRP47571	07	0736	0754	0738	S15	E41	.655	12261	10.4	18	--F				.63				6 6 6 9
BUCA	07	0735	0800		S15	E42	.667	12261	10.5	25	-F		C	0737	.55	.70			D
ATHN	07	0735	0757	0739	S15	E41	.655	12261	10.4	22	-N	3	V		.66				DE
CRON	07	0735E	0742	0736	S16	E39	.631	12261	10.2	7D	-F		V	0736	.90				
TEHR	07	0736	0755	0739	S15	E42	.667	12261	10.5	19	-F	2	V		.66				DE
MANI	07	0737E	0756	0738	S16	E41	.656	12261	10.4	19D	-N	2		0738	.72	.97			
CATA	07	0740	0755	0740	S15	E41	.655	12261	10.4	15	-N	3		0740	.28	.38		(200)	
GRP47572	07	1540	1607	1544	N14	E35	.652	12259	10.3	27	--F				.76				3 3 2 4
MEUO	07	1538	1607	1543	N14	E36	.663	12259	10.4	29	-F		C	1543	.52	.70			E
BOUL	07	1541	1605	1544	N13	E35	.646	12259	10.3	24	-N	3	V						
CANR	07	1546E	1610		N14	E34	.641	12259	10.2	24D	-F		V		1.00				
573 PALE	07	2042E	2047	2043U	S19	E38	.626	12261	10.7	5D	--F	3	C		.55				F 3
GRP47574	07	2122	2131	2126	S19	E38	.626	12261	10.7	9	-N				.81				2 2 2 3
BOUL	07	2121	2132	2125	S20	E37	.616	12261	10.7	11	-N	3	V	2125	.80	1.00			
PALE	07	2122	2129	2126	S18	E38	.623	12261	10.7	7	-N	3	C		.81				F
GRP47575	07	2259	2307	2300	S19	E36	.600	12261	10.7	8	--F				.43				2 2 2 4
PALE	07	2259	2308	2300	S19	E37	.613	12261	10.7	9	-F	3	C		.36				F
CRON	07	2259E	2305		S18	E35	.584	12261	10.6	6D	-F		V		.50				
GRP47576	07	2330	2344	2336	S18	E37	.610	12261	10.8	14	-B				.79				4 4 4 5
MANI	07	2325E	2344	2334	S18	E37	.610	12261	10.8	19D	-B	1		2334	1.03	1.31			
CRON	07	2331E	2340		S18	E35	.584	12261	10.6	9D	-N		V		.60				
BOUL	07	2334	2344	2337	S20	E36	.684	12261	10.7	10	-N	3	V	2338	.80	1.00			
PALE	07	2335E	2347	2337	S17	E39	.633	12261	10.9	12D	-B	2	V		.72				F
GRP47578	08	0152	0324	0224	S06	E70	.937	12263	13.3	92	-N				.47				3 2 2 6
KODA	08	0152E	0324	0254	S06	E67	.917	12263	13.1	92D	1F		P	0159	2.29	2.30	1.80		D
MITK	08	0200	0230	0224	S06	E71	.942	12263	13.4	30	-N		C	0224	.62				E
MANI	08	0224E	0227D	0224U	S06	E69	.930	12263	13.3	3D	-N	1		0224	.31	.64			
579 MITK	08	0435	0459	0443	S07	E70	.936	12263	13.4	24	1F		C	0443	1.13				3
580 MANI	08	0517	0540	0525	S18	E34	.571	12261	10.8	23	--F	2		0525	.31	.38			2
GRP47581	08	0740E	0755	0743	S19	E33	.561	12261	10.8	15	--F				.41				2 2 2 4
MANI	08	0740E	0803	0743U	S18	E31	.557	12261	10.8	23D	-F	1		0743	.31	.38			
CRON	08	0742E	0746	0742E	S19	E33	.561	12261	10.8	4D	-F		V	0742	.50				
GRP47583	08	0825	0954	0906	S07	E67	.916	12263	13.4	89	-N				.62				3 2 1 6
ISTA	08	0825	1010		S07	E67	.916	12263	13.4	105	-N			0845					
MEUO	08	0858	0938	0902	S07	E67	.916	12263	13.4	40	-N		C	0927	.62				T
TEHR	08	0910E	0916D	0910U	S07	E66	.909	12263	13.3	6D	-N	2	V		.33				DE H
47583	08	0925	1000	0929	S07	E67	.916	12263	13.4	35	+-N				.65				5 5 5 7
MEUO	08	0858	0938	0927	S07	E67	.916	12263	13.4	40	-N		C	0927	.62				T
UPIC	08	0923E	1012D	0930	S07	E68	.923	12263	13.5	49D	1N		P	0930	1.05				FK
LOCA	08	0925E	1028	0925	S06	E67	.917	12263	13.4	55D	-B		V	0925	.63	1.60			
CRON	08	0927E	0953	0928	S07	E65	.902	12263	13.3	26D	-N		V	0928	.50				
HERS	08	0932	0958	0935	S08	E66	.909	12263	13.3	26	-B		P	0935	.44	1.00			D
GRP47584	08	1230	1248	1238	S06	E64	.895	12263	13.3	18	-N				.46				2 2 2 4
MCMA	08	1230	1246	1237	S06	E64	.895	12263	13.3	16	-N		C	1237	.62	1.50			EH
CATA	08	1238E	1250D	1238	S05	E64	.896	12263	13.3	12D	-N	3		1238	.29	.65		(186)	
585 MCMA	08	1314	1338		S06	E64	.895	12263	13.4	24	-N		C	1324	.72	1.70			E 3
586 MCMA	08	1445	1618	1507	S05	E63	.888	12263	13.3	85	-N		C	1507	.52	1.20			E 4
587 MCMA	08	1621	1637	1630	S06	E63	.887	12263	13.4	16	--N		C	1630	.41	.90			D 2
588 MCMA	08	1920	1932	1923	S06	E62	.879	12263	13.5	12	--F		C	1923	.26	.60			D 2
589 MCMA	08	2035	2050D	2037	S06	E61	.871	12263	13.4	15D	--N		C	2037	.31	.60			D 1
GRP47590	08	2358	0012	0003	S05	E58	.845	12263	13.3	14	1N				.92				3 3 3 5
MITK	08	2357	0013	0003	S06	E59	.853	12263	13.4	16	1N		C	0003	1.34	2.60			
VORO	08	2358	0012	0002	S04	E60	.864	12263	13.5	14	1N		C	0002	1.11	2.13		77	DHL
MANI	09	0002E	0010	0004U	S06	E56	.825	12263	13.2	8D	-N	1		0004	.31	.52			
591 MITK	09	0103	0119	0105	S06	E60	.862	12263	13.5	16	1N		C	0105	1.13	2.20			D 4

SOLAR FLARES
Confirmed

MARCH 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
GRP47593	09	0150	0306	0154	S07	E58	.843	12263	13.4	76	-B				1.82				2 1 1 6
KODA	09	0150E	0306	0154	S07	E58	.843	12263	13.4	76D	-B		P	0200	1.82	1.87	1.92		D
MITK	09	0209	0222	0212	S07	E58	.843	12263	13.4	13	1F		C	0212	1.24	2.40			
47593	09	0259	0407		S07	E58	.843	12263	13.5	68	*-F				1.04				2 2 2 5
MITK	09	0259	0425	0309	S06	E58	.844	12263	13.5	86	1F		C	0309	1.24	2.30			
MANI	09	0327E	0349	0335	S08	E58	.843	12263	13.5	22D	-N	2		0335	.83	1.45			
GRP47594	09	0429	0450	0436	S07	E56	.824	12263	13.4	21	-N				1.26				3 3 3 3
MANI	09	0429	0503D	0437	S08	E57	.833	12263	13.5	34D	-N	2		0437	.93	1.58			
MITK	09	0429	0448	0437	S06	E56	.825	12263	13.4	19	1N		C	0437	2.17	3.80			E
CRON	09	0432E	0440	0433	S07	E56	.824	12263	13.4	8D	-N		V		.65				
595 MITK	09	0518	0531	0520	S15	E18	.330	12261	10.6	13	--N		C	0520	.93	.90			D 3
596 MITK	09	0534	0548	0539	S15	E14	.272	12261	10.3	14	1N		C	0539	2.17	2.10			2
597 MITK	09	0558	0638	0611	S07	E56	.824	12263	13.4	40	1N		C	0611	2.06	3.60			4
GRP47599	09	0808	0825	0813	S15	E17	.315	12261	10.6	17	--N				.56				6 6 6 8
ARCE	09	0805	0828	0813	S14	E16	.294	12261	10.5	23	-N		C	0813	.44	.50			
ATHN	09	0805	0825	0808	S17	E17	.330	12261	10.6	20	-N	2	C		.50				DE
CAPS	09	0806E	0825D		S14	E18	.324	12261	10.7	19D	-B	3	V	0809	.58	.50		(260)	C
MANI	09	0809E	0824	0811	S15	E17	.315	12261	10.6	15D	-N	1		0811	.52	.54			
CATA	09	0810	0825	0815	S15	E17	.315	12261	10.6	15	-B	3		0815	.87	.91		(229)	
TEHR	09	0815	0823	0819	S15	E16	.301	12261	10.5	8	-F	3	V		.50				DE
	09	1230	1259	NO FLARE PATROL															
	09	1325	1340	NO FLARE PATROL															
602 HUAN	09	1704	1710	1705U	S06	E50	.762	12263	13.5	6	--F	1	C	1705					2
603 HUAN	09	1743	1746	1744	S10	E48	.737	12263	13.3	3	--F	1	C	1744					2
	09	1845	1855	NO FLARE PATROL															
	09	1945	1956	NO FLARE PATROL															
604 HUAN	09	2033E	2036D		S13	E63	.884	12264	14.6	3D	--F	1	P	2035	.15	.34			D 2
605 MANI	10	0449	0504	0454	S06	E40	.639	12263	13.2	15	--F	2		0454	.52	.66			3
GRP47606	10	1457	1520	1502	S14	E53	.793	12264	14.6	23	--N				.29				2 2 1 2
CATA	10	1455E	1525	1500	S13	E53	.792	12264	14.6	30D	-B	3		1500	.29	.47		(219)	
BOUL	10	1458	1514	1503	S14	E52	.782	12264	14.6	16	-F	2	V						
	10	1545	1610	NO FLARE PATROL															
	10	1620	1710	NO FLARE PATROL															
607 BOUL	10	1633	1652	1637	S08	E34	.555	12263	13.2	19	--F	2	V						1
608 BOUL	10	1704	1726	1711	S08	E34	.555	12263	13.3	22	--F	2	V						2
609 PALE	10	1932E	1954	1946	S07	E31	.511	12263	13.1	22D	--F	2	C		.63				1
	10	2148	2214	NO FLARE PATROL															
GRP47610	10	2220	2254	2224	S06	E31	.512	12263	13.3	34	-N				1.57				2 2 1 5
BOUL	10	2220	2237	2224	S08	E32	.526	12263	13.3	17	-F	2	V						
VORO	10	2224E	2311		S03	E30	.503	12263	13.2	47D	-B		P	2224	1.57	1.78		74	EHJK
47610	10	2239	2303	2245	S07	E30	.496	12263	13.2	24	*-N				.54				3 3 2 6
PALE	10	2229E	2250D	2245	S07	E28	.466	12263	13.0	21D	-N	2	C		.45				H
MANI	10	2243E	2308	2243U	S05	E29	.484	12263	13.1	25D	-N	1		2243	.62	.71			
BOUL	10	2244	2258	2247	S08	E32	.526	12263	13.3	14	-F	2	V						
GRP47611	10	2342	2350	2344	S04	E34	.559	12263	13.5	8	--N				.45				2 2 2 4
VORO	10	2342	2349	2344	S02	E35	.577	12263	13.6	7	-N		C	2344	.28	.33		68	DL
MANI	10	2343E	2351	2343U	S05	E32	.528	12263	13.4	8D	-N	2		2343	.62	.73			
GRP47614	11	0032	0037	0033	S04	E34	.559	12263	13.6	5	--N				.25				2 2 2 5
MANI	11	0032	0037	0033	S05	E32	.528	12263	13.4	5	-N	2		0033	.31	.37			
VORO	11	0032	0037	0033	S02	E35	.577	12263	13.6	5	-N		C	0033	.19	.22		59	DL

SOLAR FLARES
Confirmed

MARCH 1973

OBSERVATORY	OBSERVED UT				LOCATION						DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY		MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP47618	11	0757	0809	0800	S07	E32	.526	12263	13.7		12	--N				.40				3 3 3 8
TEHR	11	0757	0808	0800	S07	E32	.526	12263	13.7		11	-N	4	V		.41				F
ATHN	11	0759E	0800D	0759U	S06	E31	.512	12263	13.7		1D	-N	1	V		.50				DE
CATA	11	0800E	0810	0800	S07	E33	.541	12263	13.8		10D	-N	3		0800	.29	.34		(186)	
GRP47621	11	1121	1155	1125	S06	E21	.357	12263	13.0		34	-N				1.11				6 5 5 10
KIEV	11	1117	1125	1119	S07	E20	.339	12263	13.0		8	-N		C	1119	1.03	1.10		65	DI
CATA	11	1120	1155	1120	S06	E22	.373	12263	13.1		35	-N	3		1120	.29	.31		(158)	
CAPS	11	1121	1138D	1128	S05	E20	.342	12263	13.0		17D	-B	2	V	1128	.50	.50		(350)	H
WEND	11	1124	1137		S04	E23	.393	12263	13.2		13	1N		V		3.09				
ATHN	11	1125E	1140	1127	S07	E22	.372	12263	13.1		15D	-B	3	V		.68				DE
RAMY	11	1132E	1155	1132U	S05	E22	.374	12263	13.1		23D	-N	2	V		1.03				DE H
47621	11	1139	1151	1146	S05	E22	.374	12263	13.1		12	*-F				.66				2 2 2 9
RAMY	11	1132E	1155	1146U	S05	E22	.374	12263	13.1		23D	-N	2	V		.72				DE H
CANR	11	1145	1147	1146	S05	E21	.358	12263	13.1		2	-F		V	1146	.68	.68			
GRP47622	11	1200	1215	1203	S05	E21	.358	12263	13.1		15	-N				1.20				5 5 5 8
WEND	11	1156	1208		S04	E22	.377	12263	13.1		12	1N		V		3.09				
CAPS	11	1159	1209D	1201	S05	E20	.342	12263	13.0		10D	-B	2	V	1202	.80	.80		(360)	H
RAMY	11	1200E	1212	1202	S03	E20	.348	12263	13.0		12D	-N	3	V		.72				DE
TEHR	11	1201E	1212	1204	S05	E22	.374	12263	13.2		11D	-B	4	V		.83				F H
CATA	11	1205	1235	1205	S06	E21	.357	12263	13.1		30	-N	3		1205	.58	.62		(166)	
GRP47625	11	1443	1459	1450	S07	E29	.481	12263	13.8		16	--N				.57				5 5 4 5
BOUL	11	1434	1503D	1455U	S08	E27	.450	12263	13.6		29D	-F	3	V						
RAMY	11	1445E	1508	1446U	S06	E28	.467	12263	13.7		15D	-N	3	V		.46				DE
CAPS	11	1445E	1457D		S07	E30	.496	12263	13.9		12D	-B	2	V	1448	.40	.40		(256)	C
HUAN	11	1446E	1453		S07	E29	.481	12263	13.8		7D	-F	1	P	1449	.21	.22			D
CANR	11	1446	1508	1450	S05	E29	.484	12263	13.8		14	-N		V	1450	1.20	1.30			
	11	1527	1532	NO FLARE PATROL																
GRP47626	11	1744	1753	1745	S07	E17	.290	12263	13.0		9	--F				.51				2 2 2 4
HUAN	11	1744	1758	1745	S07	E17	.290	12263	13.8		6	-F	1	C	1745	.21	.21			D
BOUL	11	1744	1756D	1745	S06	E17	.291	12263	13.8		12D	-F	3	V	1747	.80	.80			
GRP47627	11	1923	1946	1934	S06	E16	.275	12263	13.0		23	--N				.76				2 2 2 2
BOUL	11	1915	1947D	1934	S06	E16	.275	12263	13.0		32D	-N	3	V	1936	.80	.80			
BOUL	11	1915	1947D	1920U	S06	E16	.275	12263	13.0		32D	-F	3	V	1923	.30	.30			
PALE	11	1931	1945	1933	S07	E15	.257	12263	12.9		14	-N	2	C		.72				F
PALE	11	1931	1939	1933	S05	E17	.293	12263	13.1		8	-N	2	V		.62				F
GRP47630	12	0157	0215	0208	S07	E23	.388	12263	13.8		18	--F				.98				2 2 2 4
KOOA	12	0149E	0209D		S07	E22	.372	12263	13.7		20D	-F		P	0208	1.40	1.40			E
MANI	12	0205	0215	0208	S07	E23	.388	12263	13.8		10	-F	2		0208	.52	.56			
5 STATIONS REPORTING GROUP 47633. 0 STATIONS OBSERVING AND NOT REPORTING.																				
GRP47633	12	0357	0451	0408	S16	W21	.380	12261	10.6		54	-N				1.76				4 4 4 5
MANI	12	0357	0443	0405	S16	W24	.424	12261	10.4		46	-N	2		0405	1.34	1.47			
CULG	12	0357	0550	0412	S14	W20	.355	12261	10.7		113	1N		C	0412	2.48	2.70			
PALE	12	0358	0416	0406	S18	W20	.379	12261	10.7		18	-N	2	C		.72				F
TEHR	12	0359E	0459	0408	S16	W20	.366	12261	10.7		60D	1N	2	V		2.48				F S
47633	12	0359E	0450	0423	S17	W20	.372	12261	10.7		51	*-F				3.21				2 2 2 5
TEHR	12	0359E	0459	0423	S16	W20	.366	12261	10.7		60D	1N	2	V		4.62				F S
CRON	12	0424E	0440		S17	W20	.372	12261	10.7		16D	-F		V		1.80				
GRP47634	12	0602	0615	0608	N13	W20	.565	12259	10.2		13	--F				.41				2 2 2 4
TEHR	12	0558	0616	0607	N12	W28	.557	12259	10.1		18	-F	3	V		.41				F
MANI	12	0606	0613	0609	N13	W26	.565	12259	10.2		7	-F	2		0609	.41	.50			
7 STATIONS REPORTING GROUP 47636. 0 STATIONS OBSERVING AND NOT REPORTING.																				
GRP47636	12	1056	1210	1113	S19	W21	.400	12261	10.9		74	1B				4.33				6 6 6 7
MONT	12	1046	1201	1120	S19	W21	.400	12261	10.9		75	1N		C	1120	4.64				
TEHR	12	1055	1224	1107	S21	W20	.403	12261	11.0		89	2B	3	V		5.28				U S
CANR	12	1058	1137D	1104	S17	W22	.400	12261	10.8		39D	1B		V	1100	3.00	3.20			
KIEV	12	1100	1200	1116	S18	W21	.393	12261	10.9		60	2N		C	1116	6.19	6.90		70	EI
RAMY	12	1103	1214	1116	S17	W21	.386	12261	10.9		71	1N	2	C		3.25				U F
ATHN	12	1113E	1210	1113U	S20	W21	.407	12261	10.9		57D	1B	2	C		3.63				U F
47636	12	1133	1224	1140	S17	W24	.429	12261	10.7		51	*1N				3.70				5 5 5 7
CAPS	12	1056E	1214D		S18	W20	.379	12261	11.0		78D	2B	1	S	1144	7.00	7.70		(237)	HU
CANR	12	1058	1137D	1137	S17	W22	.400	12261	10.8		39D	2N		V	1137	5.60				
TEHR	12	1132	1228	1136	S16	W25	.438	12261	10.6		56	-N	3	V		1.32				U F
ATHN	12	1133	1228	1142	S17	W26	.457	12261	10.5		47	-N	3	C		1.98				U F
MONT	12	1134	1211D	1145	S15	W26	.448	12261	10.5		37D	1N		C	1145	2.58				

SOLAR FLARES
Confirmed

MARCH 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP47638	12	1532	1543	1536	S13	E22	.381	12264	14.3	11	--F				.61				2 2 2 3
BOUL	12	1530	1547	1535	S13	E21	.366	12264	14.2	17	-F	2	V	1535	.80	.80			
HUAN	12	1534	1539	1536	S13	E22	.381	12264	14.3	5	-F	1	C	1536	.41	.44			
639 RAMY	12	1630	1647	1636	S07	E05	.087	12263	13.1	17	--F	3	C		.28				DE 2
1 STATIONS REPORTING GROUP 47640. 0 STATIONS OBSERVING AND NOT REPORTING.																			
640 PALE	12	1951	2003	1956	S07	E14	.240	12263	13.9	12	--F	3	C		.36				1
640 PALE	12	1955	2003	1956	S18	E07	.221	12263	13.4	8	*-F	3	C		.19				1
47640	12	1951	2008	1957	S05	E05	.095	12263	13.2	17	*-F				.46				1 1 1 1
PALE	12	1951E	2001	1957U	S06	E06	.106	12263	13.3	10D	-F	3	V		.46				F H
PALE	12	1951	2008	1956	S05	E05	.095	12263	13.2	17	-F	3	C		.36				H
641 HUAN	12	2100	2104		S17	W30	.513	12261	10.6	4	--F	1	C	2102					3
	12	2133	2153	NO FLARE PATROL															
642 PALE	12	2208E	2210D	2210U	S17	W28	.485	12261	10.8	2D	--B	3	C		.81				DE 1
	12	2210	2219	NO FLARE PATROL															
644 CRON	13	0231E	0244		N11	W45	.747	12259	9.7	13D	--F		V		.40				3
GRP47645	13	0322	0335	0327	S08	E00	.014	12263	13.1	13	--F				.41				2 2 2 3
MANI	13	0320	0335	0325	S06	W01	.027	12263	13.1	15	-F	2		0325	.62	.62			
TEHR	13	0323	0334	0328	S09	E01	.036	12263	13.2	11	-F	3	C		.19				DE
GRP47648	13	0517	0535	0522	N10	W46	.754	12259	9.8	18	1N				1.22				3 3 3 4
MANI	13	0514	0537	0524	N10	W46	.754	12259	9.8	23	1N	2		0524	1.96	2.53			
CULG	13	0516E	0542	0520	N10	W48	.775	12259	9.6	26D	1N		P	0520	1.24	2.10			
CRON	13	0520	0526	0521	N11	W45	.747	12259	9.8	6	-F		V	0521	.45				
650 MITK	13	0606	0615D	0608	N13	W48	.786	12259	9.7	9D	--F		C	0608	.62	1.00			E 5
GRP47652	13	0810	0817	0811	S08	W03	.054	12263	13.1	7	--F				.36				2 2 2 8
MONT	13	0810	0815	0811	S07	W03	.052	12263	13.1	5	-F		C	0811	.21				
CAPS	13	0811E	0818D		S08	W02	.037	12263	13.2	7D	-F	3	V	0813	.50	.50		(158)	
GRP47653	13	0836	0902	0841	S07	E07	.121	12263	13.9	26	-N				.39				6 6 6 10
MONT	13	0834	0856	0841	S07	E08	.138	12263	14.0	22	-N		C	0841	.21				
ARCE	13	0836E	0847		S06	E06	.106	12263	13.8	11D	-N		G	0841	.29	.30			
CAPS	13	0836E	0902D		S08	E07	.122	12263	13.9	26D	-B	3	V	0841	.30	.30		(220)	
UPIC	13	0837	0846		S07	E06	.104	12263	13.8	9	-F		P	0843	.42				D
CRON	13	0839E	0847	0840	S07	E06	.104	12263	13.8	8D	-N		V	0840	.60				
MANI	13	0842E	0900	0842	S07	E07	.121	12263	13.9	18D	-N	2		0842	.52	.52			
47653	13	0840	0915	0848	S12	E08	.160	12264	14.0	35	*-N				.93				2 1 1 10
CANR	13	0835	0845D	0845	S07	E13	.223	12264	14.3	10D	-F		V	0845	.60	.60			
MANI	13	0845	0915D	0857	S10	E08	.146	12264	14.0	30D	-N	2		0857	.93	.94			
MANI	13	0850	0915D	0851	S14	E08	.180	12264	14.0	25D	-F	2		0851	.31	.32			
47653	13	0849	0918	0904	S09	E07	.125	12263	13.9	29	*-N				1.07				3 3 3 8
MONT	13	0844	1006	0912	S09	E06	.108	12263	13.8	82	-N		C	0912	.72				E
UPIC	13	0854	0905	0859	S09	E07	.125	12263	13.9	11	-N		P	0859	1.98				F
CATA	13	0900E	0930	0900	S09	E08	.141	12263	14.0	30D	-N	3		0900	.58	.58		(182)	
9 STATIONS REPORTING GROUP 47654. 0 STATIONS OBSERVING AND NOT REPORTING.																			
GRP47654	13	0858	0920	0903	N10	W49	.785	12259	9.7	22	-N				1.09				9 9 8 9
ARCE	13	0850	0920	0903	N10	W49	.785	12259	9.7	30	-F		C	0905	.96	1.50			
MANI	13	0858	0915D	0903	N10	W48	.775	12259	9.8	17D	1N	2		0903	1.75	2.70			
MONT	13	0858	0918	0904	N09	W49	.782	12259	9.7	20	-B		C	0904	1.13				H
KIEV	13	0858	0921	0904	N09	W48	.772	12259	9.8	23	-N		C	0904	1.03			60	DI
UPIC	13	0859	0917	0904	N10	W49	.785	12259	9.7	18	1B		P	0904	1.47				K
CATA	13	0900E	0920	0900	N11	W49	.789	12259	9.7	20D	-B	3		0900	.87	1.41		(251)	
CANR	13	0908	0907D	0907	N12	W50	.802	12259	9.6	7D	-N		V	0907	.80	1.00			
CAPS	13	0900E	0918D	0902	N09	W48	.772	12259	9.8	18D	-B	3	V	0902	.70	1.10		(400)	
KHAR	13	0910E	0925		N14	W48	.789	12259	9.8	15D	1F		V						B
654 CANR	13	0900	0907D	0900	N11	W41	.703	12259	10.3	7D	*-N		V	0900	.30	.40			8

SOLAR FLARES
Confirmed
MARCH 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	NOAA PLAGE REGION	CMP DAY			COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
GRP47657	13	1211	1228	1215	S11	E11	.199	12264	14.3	17	--N				.52				4 4 3 10
RAMY	13	1210	1220	1216	S13	E10	.198	12264	14.3	10	-F	3	C		.46				DE
MONT	13	1211	1223	1213	S12	E09	.175	12264	14.2	12	-N		C	1213	.72				
HUAN	13	1211	1216	1212	S13	E09	.184	12264	14.2	5	-F	1	C	1212					
TEHR	13	1211E	1229	1214	S12	E11	.205	12264	14.3	18D	-N	3	V		.66				F
RAMY	13	1218E	1243	1222	S09	E16	.275	12264	14.7	25D	-N	3	V		.17				DE
TEHR	13	1221	1243	1222	S09	E16	.275	12264	14.7	22	-N	3	V		.17				DE
TEHR	13	1221	1243	1232	S09	E16	.275	12264	14.7	22	-N	3	V		.25				DE
GRP47658	13	1247	1258	1251	N10	W51	.805	12259	9.7	11	--F				.45				4 4 4 7
CANR	13	1246	1259		N10	W53	.824	12259	9.6	13	-N		V	1248	.60	.90			
HUAN	13	1247	1255	1248	N10	W50	.795	12259	9.8	8	-F	1	C	1248	.36	.59			
CAPS	13	1247	1300D		N09	W48	.772	12259	9.9	13D	-F	3	V	1251	.50	.80		(145)	
ARCE	13	1249	1257	1253	N10	W51	.805	12259	9.7	8	-F		C	1253	.32	.50			
GRP47659	13	1548	1620	1551	N11	W55	.845	12259	9.5	32	-F				.53				3 2 2 5
CATA	13	1545	1620	1605	N11	W52	.818	12259	9.8	35	-B	3		1605	.58	1.00		(289)	
HUAN	13	1547	1552D	1551	N11	W55	.845	12259	9.5	5D	-F	1	P	1551	.26	.45			D
CANR	13	1548	1610	1550	N10	W55	.843	12259	9.5	22	-N		V		.80	1.00			
GRP47660	13	1805	1830	1807	N11	W54	.836	12259	9.7	25	-N				.62				3 3 2 4
PALE	13	1803	1830	1806	N11	W51	.808	12259	9.9	27	-B	3	C		.63				DE
CANR	13	1806	1808D	1808	N10	W56	.851	12259	9.6	2D	-N		V		.60	.90			
HUAN	13	1807E	1807D		N11	W55	.845	12259	9.6		-N	1	P	1807					
GRP47661	13	1819	1847	1828	S13	E06	.144	12264	14.2	28	--N				.78				2 2 2 2
RAMY	13	1816	1852D	1823	S12	E06	.133	12264	14.2	36D	-N	3	C		.58				DE
PALE	13	1821	1841	1832	S13	E05	.132	12264	14.1	20	-N	3	C		.99				
GRP47662	13	1932	2020	1934	S12	E07	.146	12264	14.3	48	-B				1.15				2 2 2 2
RAMY	13	1930E	2028D	1930U	S12	E06	.133	12264	14.3	58D	-N	2	C		.74				DE
PALE	13	1933	2012	1937	S12	E07	.146	12264	14.3	39	-F	3	V		.83				
PALE	13	1933	2012	1953	S12	E07	.146	12264	14.3	39	-B	3	V		1.55				
	13	2130	2139	NO FLARE PATROL															
	13	2152	2210	NO FLARE PATROL															
GRP47663	13	2222E	2353	2240	S12	E04	.108	12264	14.2	91	1N				2.06				3 3 3 4
CULG	13	2222E	2356	2235	S13	E05	.132	12264	14.3	94D	1N		P	2235	2.48	2.40			
VORO	13	2237E	2358		S12	E04	.108	12264	14.2	73D	1N		P	2238	2.68	2.67		70	EJ
MANI	13	2245E	2301	2245U	S12	E04	.108	12264	14.2	16D	-N	1		2245	1.03	1.04			
664 VORO	14	0003	0010	0004	S20	W15	.332	12263	12.9	7	--N		C	0004	.46	.66		59	D 4
GRP47665	14	0024	0046	0030	S13	E03	.113	12264	14.2	22	--N				.94				2 2 2 4
MANI	14	0022	0046	0033U	S13	E02	.107	12264	14.2	24	-N	2		0033	.41	.42			
VORO	14	0025	0035D	0027	S12	E03	.098	12264	14.2	10D	-N		C	0027	1.47	1.47		60	EJ
GRP47667	14	0057	0139	0114	S13	E03	.113	12264	14.3	42	-N				1.50				3 3 3 5
MANI	14	0057	0116D	0112	S13	E02	.107	12264	14.2	19D	-N	2		0112	1.44	1.46			
CRON	14	0103E	0133	0112	S13	E04	.122	12264	14.3	30D	-B		V	0112	1.00				
MITK	14	0118E	0144	0118	S13	E02	.107	12264	14.2	26D	1F		C	0118	2.06	2.10			CE
GRP47668	14	0136	0215	0141	N10	W60	.864	12259	9.8	39	1F				1.03				2 1 1 5
MITK	14	0136	0215	0141	N10	W60	.864	12259	9.6	39	1F		C	0141	1.03	2.20			E
KODA	14	0148E	0249	0227	N09	W56	.849	12259	9.9	61D	1N		P	0148	2.81	2.80	1.44		E
GRP47669	14	0138	0326	0144	S18	W47	.731	12261	10.5	108	-F				.47				3 2 2 4
MANI	14	0137	0147D	0142	S19	W48	.744	12261	10.5	10D	-F	2		0142	.31	.46			
MITK	14	0138	0207	0145	S17	W46	.718	12261	10.6	29	-N		C	0145	.62	.90			D
KODA	14	0148E	0326	0255	S19	W46	.722	12261	10.6	98D	-B		P	0148	1.86	1.90	1.76		D
GRP47673	14	0736	0751	0742	N11	W60	.886	12259	9.8	15	-N				.52				4 4 4 5
TEHR	14	0732	0757	0742	N10	W58	.868	12259	10.0	25	-N	3	C		1.00				F H
CRON	14	0737E	0742	0738	N12	W59	.881	12259	9.9	5D	-N		V	0738	.40				
CANR	14	0740	0756		N11	W62	.901	12259	9.7	16	-N		V	0743	.40	.75			
CATA	14	0745E	0750D	0745	N10	W59	.876	12259	9.9	5D	-N	3		0745	.29	.60		(182)	
GRP47674	14	0738	0810	0751	S12	W01	.086	12264	14.2	32	-N				1.40				5 4 4 5
MANI	14	0725	0741D	0729	S12	W03	.098	12264	14.1	16D	-F	2		0729	.41	.42			
TEHR	14	0734	0811	0755	S11	E01	.069	12264	14.4	37	-N	3	C		1.55				F
TEHR	14	0734	0811	0745	S11	E01	.069	12264	14.4	37	-N	3	C		1.28				F
CRON	14	0740	0818	0752	S13	W01	.103	12264	14.2	38	-N		V	0752	1.70				
CANR	14	0740	0818		S12	E00	.084	12264	14.3	38	-N		V	0742	.60	.60			
CATA	14	0745E	0750D	0745	S13	W02	.107	12264	14.2	5D	-N	3		0745	1.73	1.74		(191)	

SOLAR FLARES
Confirmed
MARCH 1973

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP47675	14	0925	0949	0933	N11	W61	.894	12259	9.8	24	-B				1.05				4 4 4 5
CANR	14	0925	0945	0929	N11	W62	.901	12259	9.7	20	1B		V	0929	1.60	3.20			
MANI	14	0928E	0938D	0928U	N10	W64	.914	12259	9.6	10D	-N	2		0928	.62	1.20			
TEHR	14	0934E	0952	0939	N10	W58	.868	12259	10.0	18D	-B	3	V		1.32				DE
ATHN	14	0936E	0943D	0936U	N11	W61	.894	12259	9.8	7D	-N	1	C		.66				F S
GRP47676	14	1129	1136	1130	S17	W52	.784	12261	10.6	7	--F				.43				5 5 5 5
RAMY	14	1128E	1136	1130	S17	W51	.774	12261	10.7	8D	-F	2	V		.52				DE
TEHR	14	1128E	1136	1129	S17	W50	.763	12261	10.7	8D	-N	2	V		.17				F
ATHN	14	1129E	1139	1132	S17	W52	.784	12261	10.6	10D	-F	3	V		.33				DE
HEUO	14	1129	1133	1130	S17	W52	.784	12261	10.6	4	-F		C	1130	.31	.50			D
CANR	14	1130E	1135	1130E	S16	W53	.794	12261	10.5	5D	-F		V	1130	.80	1.20			
GRP47677	14	1153	1211	1203	N12	W52	.821	12259	10.6	18	--F				.29				3 3 3 5
HEUO	14	1147	1210		N13	W52	.824	12259	10.6	23	-F		C	1154	.41	.70			F
CATA	14	1155	1205D	1205	N12	W52	.821	12259	10.6	10D	-N	3		1205	.28	.50		(191)	
TEHR	14	1157	1212	1201	N10	W52	.815	12259	10.6	15	-F	2	V		.17				DE
GRP47679	14	1258	1303	1255	N13	W66	.931	12259	9.6	13	-F				.84				2 2 2 5
HEUO	14	1249	1300	1250	N12	W66	.930	12259	9.6	11	-F		C	1250	.52				
CATA	14	1250	1305D	1300	N13	W65	.925	12259	9.7	15D	1N	3		1300	1.16	3.04		(166)	
GRP47681	14	1348	1356	1350	N11	W65	.922	12259	9.7	8	-N				.52				5 5 5 8
HEUO	14	1346	1356		N11	W64	.915	12259	9.8	10	-N		C	1349	.83				
CANR	14	1347	1355	1348	N11	W67	.934	12259	9.5	8	-N		V		.40				
CAPS	14	1347E	1356D		N13	W66	.931	12259	9.6	9D	-F	2	V	1351	.40			(150)	
CATA	14	1350	1400	1350	N10	W64	.914	12259	9.8	10	-B	3		1350	.58	1.42		(275)	
ARCE	14	1350	1354	1351	N09	W65	.919	12259	9.7	4	-F		C	1351	.38	.90			
GRP47682	14	1413	1433	1415	S17	W54	.804	12261	10.5	20	-B				.64				6 6 6 6
RAMY	14	1411E	1420D	1411U	S17	W54	.804	12261	10.5	9D	-B	3	V		.66				F
ATHN	14	1411E	1420D	1411U	S17	W54	.804	12261	10.5	9D	-B	1	V		.66				F
HEUO	14	1412	1436	1415	S17	W54	.804	12261	10.5	24	-N		C	1415	.62	1.00			E
CANR	14	1413	1430	1414	S19	W55	.815	12261	10.5	17	-N		V		.50				
CATA	14	1415	1435	1415	S18	W55	.815	12261	10.5	20	-B	3		1415	.58	1.00		(240)	
CAPS	14	1415E	1432D		S16	W53	.794	12261	10.6	17D	-B	2	S	1416	.80	1.40		(277)	
GRP47683	14	1444	1521	1459	S13	W09	.184	12264	13.9	37	-F				1.35				3 3 2 4
HEUO	14	1442	1512	1500	S14	W09	.194	12264	13.9	30	-F		C						
HEUO	14	1442	1512	1445	S14	W09	.194	12264	13.9	30	-F		C	1445	.52	.50			E
CANR	14	1445	1525	1458	S13	W10	.198	12264	13.9	40	-F		V		1.20				
CAPS	14	1459E	1525D		S13	W07	.157	12264	14.1	26D	-N	3	P	1501	1.50	1.50		(190)	B
GRP47684	14	1453	1519	1501	S07	W09	.155	12263	13.9	26	-N				1.28				3 3 3 4
CANR	14	1453E	1525	1501	S07	W12	.206	12263	13.7	32D	-N		V		1.00				
HEUO	14	1453	1512	1500	S07	W10	.172	12263	13.9	19	-N		C	1500	.83	.80			E
CAPS	14	1459E	1521D		S06	W06	.106	12263	14.2	22D	1N		P	1501	2.00	2.00		(190)	B
GRP47685	14	1510	1605	1518	S17	W52	.784	12261	10.7	55	-F				.78				3 2 2 6
HEUO	14	1506	1530	1518	S17	W52	.784	12261	10.7	24	-F		C	1518	.62	1.00			EH
ATHN	14	1514	1529D	1518	S17	W52	.784	12261	10.7	15D	-N	1	V		.83				F H
CATA	14	1530E	1605	1530	S17	W49	.752	12261	11.0	35D	-N	3		1530	1.16	1.75		(191)	
687 RAMY	14	1700	1718	1703	N10	W67	.933	12259	9.7	18	-N	3	V		.52				DE 2
GRP47688	14	1825	1836	1829	N14	W65	.926	12259	9.9	11	--F				.52				2 2 2 2
PALE	14	1825E	1836D	1825U	N15	W62	.909	12259	10.1	11D	-F	2	V		.62				
RAMY	14	1831E	1834D	1833U	N12	W68	.941	12259	9.7	3D	-N	3	V		.41				DE
	14	2048	2113	NO FLARE PATROL															
GRP47689	14	2253E	2306	2254	S18	W57	.833	12261	10.7	13	-N				.74				2 2 2 5
PALE	14	2253E	2307	2253U	S18	W58	.842	12261	10.6	14D	-N	2	C		.56				
MANI	14	2253E	2305	2255U	S17	W55	.814	12261	10.8	12D	-N	1		2255	.93	1.55			
GRP47690	14	2338	0002	2347	N12	W70	.952	12259	9.7	24	-N				.68				3 2 2 5
PALE	14	2322E	2329D	2329U	N18	W60	.901	12259	10.5	7D	-F	2	C		.55				F
VORO	14	2324E	2358		N12	W69	.947	12259	9.8	34D	1N		P	2325	.74	2.31	64		EHJ
VORO	14	2331	2355	2339	N12	W76	.978	12259	9.3	24	-B		C	2339	.48	1.86	66		EH
MANI	14	2345	0005	2347	N11	W67	.934	12259	10.0	20	-N	1		2347	.62	1.28			
GRP47691	15	0018	0026	0020	S09	W20	.340	12263	13.5	8	--B				.83				2 2 2 5
MANI	15	0018	0025	0020	S08	W19	.323	12263	13.6	7	-N	2		0020	.72	.76			
VORO	15	0018	0026	0020	S09	W20	.340	12263	13.5	8	-B		C	0020	.93	.97	77		DHL
47694	15	0200	0238	0221	S09	W20	.340	12263	13.6	38	--B				.28				2 1 1 6
VORO	15	0200	0238		S09	W20	.340	12263	13.6	38	-B		C	0205	.28	.29	61		D
PALE	15	0220E	0231D	0221U	S07	W19	.323	12263	13.7	11D	-F	2	C		.45				

SOLAR FLARES
Confirmed

MARCH 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		CONO.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	
GRP47696	15	0343	0406	0343	N12	W75	.974	12259	9.5	23	-N				.45				2 1 1 4
TEHR	15	0343	0406	0343	N12	W75	.974	12259	9.5	23	-N	3	C		.45				F
MANI	15	0404E	0435D	0406U	N13	W71	.958	12259	9.8	31D	-N	2		0406	.62	1.46			
697 TEHR	15	0426	0435	0428	S10	W28	.467	12263	13.1	9	--F	3	C		.21				DE 4
698 TEHR	15	0508	0520	0508	S19	W61	.869	12261	10.6	12	--N	3	C		.36				DE 4
GRP47704	15	1103	1108	1104	N17	W88	1.000	12259	8.9	5	1F				.88				2 2 2 5
MEUO	15	1100	1105	1102	N16	W85	.999	12259	9.1	5	-F		C	1102	.31				E
CATA	15	1105	1110	1105	N17	W90	1.001	12259	8.7	5	2N	3		1105	1.44			(151)	
GRP47709	15	1213	1242	1220	N17	W79	.989	12259	9.6	29	--F				.87				2 2 1 3
RAMY	15	1213	1239		N16	W80	.991	12259	9.5	26	-F	3	C						DE
CATA	15	1215E	1245	1220	N17	W77	.984	12259	9.7	30D	1F	3		1220	.87			(148)	
712 PALE	15	2016E	2021	2018	S08	W30	.496	12263	13.6	5D	--F	2	C		.36				2
GRP47713	15	2042	2115	2046	S13	W28	.472	12263	13.8	33	--F				.55				2 1 1 2
PALE	15	2042	2115D	2046	S13	W28	.472	12263	13.8	33D	-F	2	C		.55				F
RAMY	15	2107E	2109D	2108U	S08	W26	.435	12263	13.9	2D	-N	2	C		.66				DE
714 PALE	15	2205E	2220	2205U	S08	W30	.496	12263	13.7	15D	--N	2	C		.63				F 1
GRP47717	16	0231	0249	0233	S13	W24	.412	12264	14.3	18	-N				1.75				3 3 3 3
MANI	16	0230	0249D	0233	S12	W24	.409	12264	14.3	19D	-N	2		0233	1.03	1.12			
VORO	16	0231	0250	0232	S14	W24	.415	12264	14.3	19	-B		C	0232	1.38	1.50		82	E
KODA	16	0233E	0247	0235	S13	W23	.397	12264	14.4	14D	1N		P	0238	2.85	2.80	1.60		E
	16	0328	0346	NO FLARE PATROL															
	16	0357	0410	NO FLARE PATROL															
	16	0412	0423	NO FLARE PATROL															
	16	0435	0508	NO FLARE PATROL															
718 MEUO	16	0800E	0814D		N13	W90	1.000	12259	9.6	14D	--F		C	0805	.83				4
GRP47723	16	1931	2010	1936	S12	W47	.726	12263	13.3	39	--F				1.39				2 1 1 3
RAMY	16	1931	2010	1936	S12	W47	.726	12263	13.3	39	-F	4	C		1.39				DE
BOUL	16	1947E	2002D	1950	S08	W46	.714	12263	13.4	15D	-F	2	V	1950		1.10			
GRP47724	16	2027	2037	2029	S09	W47	.726	12263	13.3	10	--N				.46				2 2 1 2
RAMY	16	2024	2036	2026	S11	W47	.726	12263	13.3	12	-N	3	C		.46				DE
BOUL	16	2029	2037	2031	S07	W46	.715	12263	13.4	8	-N	2	V	2031		.90			
725 BOUL	16	2152	2201	2153	S07	W45	.703	12263	13.5	9	--F	2	V	2153	.20	.34			2
726 PALE	17	2212	2219	2213	S10	W53	.793	12264	13.9	7	--F	1	C		.27				3
	18	0607	0608	NO FLARE PATROL															
	18	0613	0620	NO FLARE PATROL															
	18	0624	0710	NO FLARE PATROL															
727 CAPS	18	0710E	0750D		S11	W48	.737	12264	14.7	40D	-N	3	S	0712	1.00	1.60			B 1
728 CATA	18	1020E	1030	1020	S07	W67	.917	12263	13.4	10D	--N	3		1020	.29			(174)	3
729 CATA	18	1135E	1135D	1135	S09	W65	.981	12263	13.6		-N	3		1135	.58	1.33		(155)	5
730 RAMY	18	1556	1625	1600	S07	W67	.917	12263	13.8	29	--F	3	C		.37				DE 2
731 RAMY	18	2123	2129D	2127	S07	W73	.953	12263	13.4	6D	1N	2	C		1.21				DE 2
	18	2130	2228	NO FLARE PATROL															
GRP47734	19	0706	0746	0711	S08	W74	.958	12263	13.7	40	-N				.66				3 3 3 4
MANI	19	0705U	0731U	0712U	S08	W74	.958	12263	13.7	26D	-N	2		0712	.93	2.08			
TEHR	19	0706	0746	0710	S08	W76	.967	12263	13.6	40	-N	3	C		.45				F
CAPS	19	0708	0730D		S09	W71	.941	12263	14.0	22D	-N	3	P	0717	.60			(160)	
737 MCMA	19	1920	1940D	1923	N18	E33	.658	12273	22.3	20D	--N		C	1923	.41	.50			E 3
	19	2150	2200	NO FLARE PATROL															
	19	2213	2219	NO FLARE PATROL															

SOLAR FLARES
Confirmed
MARCH 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
738 PALE	19	2355E	2359D	2355U	N13	E33	.622	12273	22.5	4D	--F	2	C		.27				4
GRP47740	20	0045	0128	0051	N15	E32	.624	12273	22.4	43	--F				.62				2 2 2 4
MANI	20	0045	0112U	0052	N15	E31	.613	12273	22.4	27D	-N	2		0052	.72	.92			
MITK	20	0048E	0127	0050	N15	E32	.624	12273	22.4	39D	-F		C	0050	.52	.70			E
MANI	20	0120	0128U	0124	N15	E32	.624	12273	22.5	8D	-F	2		0124	.31	.40			
GRP47742	20	0511	0526	0513	N16	E24	.546	12273	22.0	15	--N				.34				2 2 2 5
MANI	20	0510	0525	0514	N16	E25	.557	12273	22.1	15	-N	2		0514	.41	.50			
TEHR	20	0511	0527	0512	N16	E23	.536	12273	21.9	16	-N	2	C		.27				DE R
GRP47743	20	0714	0735	0722	N15	E25	.547	12273	22.2	21	--N				.39				5 5 4 8
TEHR	20	0713	0733	0719	N16	E23	.536	12273	22.0	20	-N	3	C		.27				DE
UPIC	20	0715	0733	0725U	N15	E23	.526	12273	22.0	18	-F		P	0725	.42				F
MANI	20	0715U	0740	0721	N15	E25	.547	12273	22.2	25D	-N	2		0721	.52	.62			
ATHN	20	0722E	0733	0724	N15	E24	.536	12273	22.1	11D	-N	1	C		.33				DE
KODA	20	0722E	0735	0722	N15	E31	.613	12273	22.6	13D	-F		V	0722			1.40		E
GRP47744	20	0824	0837	0827	N16	E27	.578	12273	22.4	13	-N				.87				6 6 6 10
MANI	20	0822	0847	0826	N17	E27	.587	12273	22.4	25	-N	2		0826	1.03	1.26			
ATHN	20	0824	0836D	0827	N16	E27	.578	12273	22.4	12D	-N	2	C		.99				DE
ARCE	20	0825E	0830		N17	E26	.576	12273	22.8	5D	-N		C	0827	.31	.40			
CATA	20	0825	0830	0825	N17	E27	.587	12273	22.4	5	-B	3		0825	1.16	1.43		(209)	
CRON	20	0825	0845	0828	N16	E26	.589	12273	22.5	20	-N		V	0828	.90				
CAPS	20	0825E	0833D		N12	E27	.543	12273	22.4	8D	-B	3	V	0826	.80	1.00		(256)	C
GRP47746	20	1112	1128	1115	N16	E23	.536	12273	22.2	16	-B				1.25				8 8 8 10
ATHN	20	1109	1128	1114	N15	E22	.515	12273	22.1	19	-B	2	C		1.32				U F
TEHR	20	1111	1126	1116	N16	E21	.516	12273	22.0	15	-B	3	C		1.00				DE H
RAMY	20	1111	1127	1115	N16	E23	.536	12273	22.2	16	-B	3	V		.98				DE
MONT	20	1112	1125	1116	N16	E22	.526	12273	22.1	13	-N		C	1116	1.13				
CANR	20	1112	1130	1113	N17	E22	.536	12273	22.1	18	-B		V	1114	.60	.70			
CAPS	20	1113E	1128D		N13	E27	.552	12273	22.5	15D	-B	3	V	1114	.50	.60		(385)	C
WEND	20	1113	1126		N15	E21	.505	12273	22.0	13	1N		V		3.09				
CATA	20	1115	1130	1115	N16	E22	.526	12273	22.1	15	-B	3		1115	1.44	1.70		(224)	
748 RAMY	20	2132E	2140D	2133U	N15	E16	.457	12273	22.1	8D	--N	1	V		.52				DE 2
GRP47750	20	2256	2306	2258	N17	E15	.473	12273	22.1	10	-N				1.02				3 3 3 4
MANI	20	2256U	2305	2257	N16	E16	.469	12273	22.2	9D	-N	1		2257	.83	.92			
BOUL	20	2256	2309	2258	N17	E14	.466	12273	22.0	13	-F	2	V	2300	.10	.10			
VORO	20	2257E	2303		N18	E14	.479	12273	22.0	6D	1N		P	2259	2.12	2.34		67	E
GRP47752	21	0011	0018	0013	N17	E14	.465	12273	22.1	7	--N				.84				2 2 2 6
MITK	21	0010	0017D	0013	N16	E14	.452	12273	22.1	7D	-N		C	0013	.83	.90			DH
VORO	21	0012	0018D	0013	N18	E13	.471	12273	22.0	6D	-N		C	0013	.84	.92		59	DHJ
GRP47756	21	1850	1930	1857	N16	E08	.412	12273	22.4	40	-F				.87				2 2 2 4
RAMY	21	1850	1930D	1857	N15	E08	.397	12273	22.4	40D	-N	2	C		1.02				DE
MCMA	21	1902E	1919D		N17	E07	.423	12273	22.3	17D	-F		P	1904	.72	.80			E
757 RAMY	21	2216	2223D		N06	E87	.999	12280	28.5	7D	-N	1	C						DE 5
GRP47759	22	0501	0510	0504	N13	E01	.342	12273	22.3	9	--F				1.03				2 2 2 5
MITK	22	0501	0509	0503	N14	E01	.359	12273	22.3	8	-F		C	0503	.93	1.00			E
MANI	22	0503U	0511	0505	N12	E01	.326	12273	22.3	8D	-N	2		0505	1.13	1.20			
GRP47760	22	0531	0549	0533	N14	E01	.359	12273	22.3	18	--F				.74				4 4 4 6
ATHN	22	0528	0548	0532	N13	E00	.342	12273	22.2	20	-F	1	V		.50				DE
MANI	22	0531	0548	0534	N12	E01	.326	12273	22.3	17	-N	2		0534	.93	.98			
MITK	22	0532	0555	0533	N14	E01	.359	12273	22.3	23	-F		C	0533	.83	.90			E
CRON	22	0532E	0545		N15	E00	.374	12273	22.2	13D	-N		V		.70				
GRP47761	22	0624	0631	0626	N13	W02	.343	12273	22.1	7	--F				.57				2 2 2 6
MITK	22	0624	0629	0626	N14	W02	.360	12273	22.1	5	-F		C	0626	.62	.70			D
MANI	22	0624	0633	0626	N12	W01	.326	12273	22.2	9	-F	2		0626	.52	.54			
GRP47762	22	0706	0715	0709	N14	W02	.360	12273	22.1	9	--B				.81				4 4 3 6
MANI	22	0705	0714U	0710U	N12	W02	.327	12273	22.1	9D	-B	1		0710	.52	.54			
WEND	22	0706E	0714D		N15	W02	.376	12273	22.1	8D	-N								
MITK	22	0707	0715	0708	N14	W02	.360	12273	22.1	8	-B		C	0708	1.24	1.30			D
ATHN	22	0708E	0715	0708U	N13	W02	.343	12273	22.1	7D	-N	2	V		.66				DE

SOLAR FLARES
Confirmed

MARCH 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		CONO.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
GRP47764	22	0855	0909	0858	N14	W03	.362	12273	22.1	14	--F				.83				5 5 5 9
CANR	22	0824E	0910	0857	N15	W05	.383	12273	22.0	46D	-F		V		1.00				
MONT	22	0836	0840	0838	N15	W03	.378	12273	22.1	4	-F		C	0838	.10				
MANI	22	0853U	0912U	0857	N12	W02	.327	12273	22.2	19D	-F	1		0857	1.03	1.09			
MEUD	22	0854	0902	0858	N15	W02	.376	12273	22.2	8	-F		C	0858	.72	.70			E
ATHN	22	0856E	0910	0858	N13	W03	.345	12273	22.1	14D	-F	3	V		.66				DE
MONT	22	0856	0912	0900	N15	W01	.375	12273	22.3	16	-N		C	0900	.72				E
GRP47766	22	0932	0948	0936	N15	W03	.378	12273	22.2	8	--N				.25				3 3 3 9
ARCE	22	0930E	0940		N14	W03	.362	12273	22.2	10D	-N		C	0936	.34	.40			
MEUD	22	0932	0940	0936	N15	W03	.378	12273	22.2	8	-F		C	0936	.31	.30			D
MONT	22	0934	0939	0936	N15	W03	.378	12273	22.2	5	-N		C	0936	.10				
GRP47773	22	1918	1939	1924	N15	W08	.397	12273	22.2	21	--F				.37				2 2 2 4
PALE	22	1918	1932	1924	N14	W08	.382	12273	22.2	14	-F	3	C		.27				F
RAMY	22	1918	1945	1923	N15	W07	.392	12273	22.3	27	-F	3	C		.46				DE
GRP47774	22	2024	2041	2028	N15	W09	.402	12273	22.2	17	--N				.42				5 5 4 5
PALE	22	2020	2038D	2027	N14	W08	.382	12273	22.2	18D	-N	3	C		.63				DE H
RAMY	22	2024	2045D	2028	N15	W09	.402	12273	22.2	21D	-N	2	V		.52				DE
BOUL	22	2027	2040D	2029	N14	W07	.376	12273	22.3	13D	-B	3	V	2029		1.20			
MCMA	22	2028E	2035D		N16	W11	.430	12273	22.0	7D	-N		C	2028	.31	.30			DH
HUAN	22	2034E	2039		N15	W10	.409	12273	22.1	5D	-F	1	P	2034	.21	.22			D
GRP47775	22	2120	2126	2121	N09	E70	.949	12280	28.1	6	--F				.26				3 3 1 4
MCMA	22	2119	2125	2120	N11	E70	.951	12280	28.1	6	-F		C	2120	.26	.80			EL
PALE	22	2119E	2120D		N05	E70	.945	12280	28.1	1D	-N	2	V						F
BOUL	22	2121	2127	2122	N10	E70	.950	12280	28.1	6	1F	3	V	2122		2.80			
776 PALE	22	2156E	2202	2156U	N06	E69	.940	12280	28.1	6D	--F	2	C		.36				F 2
GRP47778	22	2328	2338	2329	N14	W11	.401	12273	22.2	10	--F				.38				3 2 2 5
MANI	22	2328	2345U	2329	N13	W10	.380	12273	22.2	17D	-F	1		2329	.31	.33			
CRON	22	2326E	2331	2328E	N15	W12	.423	12273	22.1	3D	-F		V	2328	.45				
PALE	22	2342E	2346D	2343	N15	W10	.409	12273	22.2	4D	-N	2	V		.31				H
GRP47780	23	0054	0103	0056	N15	W12	.422	12273	22.1	9	--F				.20				2 2 2 4
PALE	23	0053	0105	0055	N15	W11	.415	12273	22.2	12	-F	2	C		.19				H
MANI	23	0054	0100	0057	N14	W12	.408	12273	22.1	6	-F	2		0057	.21	.22			
GRP47781	23	0102	0126	0110	N16	W11	.429	12273	22.2	24	--N				.67				2 2 2 4
MANI	23	0059	0119	0111	N16	W10	.423	12273	22.3	20	-N	2		0111	.62	.68			
PALE	23	0105	0133	0109	N16	W11	.429	12273	22.2	28	-N	2	C		.72				DE H
GRP47782	23	0124	0136	0128	N16	W12	.436	12273	22.2	12	--N				.46				2 2 2 4
MANI	23	0124	0141	0129	N16	W10	.423	12273	22.3	17	-N	2		0129	.41	.46			
MANI	23	0124	0141	0137	N16	W10	.423	12273	22.3	17	-N	2		0137	.21	.23			
CRON	23	0126E	0131	0126E	N16	W13	.443	12273	22.1	5D	-N		V	0131	.50				
GRP47784	23	0204	0222	0217	N16	W11	.429	12273	22.3	18	--N				.29				2 2 2 4
MANI	23	0201	0216	0213	N16	W11	.429	12273	22.3	15	-N			0213	.21	.23			
MANI	23	0201	0216	0203	N16	W11	.429	12273	22.3	15	-N	2		0203	.31	.34			
PALE	23	0207	0220D	0220U	N15	W11	.415	12273	22.3	13D	-N	2	C		.36				H
MANI	23	0217U	0222	0219	N16	W12	.436	12273	22.2	5D	-N	2		0219	.21	.23			
GRP47788	23	0609	0619	0611	N05	E64	.906	12280	28.1	10	--F				.40				3 3 3 8
ATHN	23	0608	0618	0610	N07	E64	.909	12280	28.1	10	-F	2	C		.50				DE
TEHR	23	0609	0619	0612	N05	E63	.899	12280	28.0	10	-F	1	C		.28				DE
MANI	23	0612U	0621	0612U	N04	E65	.912	12280	28.1	9D	-F	2		0612	.41	.83			
GRP47792	23	0835	0851	0843	N15	W17	.464	12273	22.1	16	--N				.41				4 4 4 9
CANR	23	0827	0855		N17	W17	.489	12273	22.1	28	-N		V	0843	.40	.40			
UPIC	23	0836	0848	0842	N15	W17	.464	12273	22.1	12	-N		P	0842	.42				
MEUD	23	0841	0850	0844	N15	W16	.455	12273	22.2	9	-N		C	0844	.31	.30			DH
MANI	23	0843U	0850U	0844	N14	W17	.452	12273	22.1	7D	-N	1		0844	.52	.58			
GRP47795	23	0928	0945	0933	N07	E62	.894	12280	28.0	17	-F				.82				4 4 3 8
UPIC	23	0923U	0950	0934U	N06	E62	.893	12280	28.0	27D	1N		P	0934	1.29				
TEHR	23	0929	0936	0933	N08	E60	.880	12280	27.9	7	-F	1	C		.64				F
ISTA	23	0929	0958		N07	E64	.909	12280	28.2	29	-F								
MEUD	23	0931	0935	0932	N08	E63	.903	12280	28.1	4	-N		C	0932	.52	1.00			
GRP47796	23	1005	1016	1007	N16	W17	.477	12273	22.1	11	--B				.36				2 2 2 5
CANR	23	1003	1020	1006	N16	W17	.477	12273	22.1	17	-B		V	1006	.40	.40			
MEUD	23	1006	1011	1007	N15	W17	.464	12273	22.1	5	-N		C	1007	.31	.30			D

SOLAR FLARES
Confirmed

MARCH 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH HG	MAX. INT. %	
6 STATIONS REPORTING GROUP 47797. 2 STATIONS OBSERVING AND NOT REPORTING.																			
GRP47797	23	1150	1204	1153	N08	E61	.888	12280	28.1	14	-N				.72				6 6 6 8
RAMY	23	1148	1205	1152	N09	E60	.882	12280	28.0	17	-N	4	V		.62				DE
ATHN	23	1148	1208	1152	N07	E61	.886	12280	28.1	20	-N	2	C		.83				F
MEUD	23	1149	1201	1153	N08	E62	.896	12280	28.1	12	-N		C	1153	.62	1.20			E
UPIC	23	1151E	1201	1153	N07	E60	.878	12280	28.0	10D	1N		P	1153	1.46				F
CANR	23	1152	1209		N08	E60	.880	12280	28.0	17	-N		V	1154	.50	.90			
TEHR	23	1154E	1200	1154U	N08	E62	.896	12280	28.1	6D	-N	3	V		.31				DE
47797	23	1142	1255	1247	N04	E67	.926	12280	28.5	73	*-F				.31				2 2 2 10
CANR	23	1142	1257		N04	E67	.926	12280	28.5	75	-N		V	1252	.30	.60			
RAMY	23	1246E	1253	1247U	N03	E67	.925	12280	28.6	7D	-F	4	V		.31				DE
GRP47798	23	1321	1430	1325	N08	E60	.880	12280	28.1	69	-N				.50				4 4 4 10
RAMY	23	1320	1353	1323	N09	E59	.874	12280	28.0	33	-N	4	V		.52				DE
TEHR	23	1321	1331	1326	N08	E62	.896	12280	28.2	10	-N	1	C		.28				DE
MCMA	23	1321	1430D	1325	N08	E59	.872	12280	28.0	69D	-N		C	1334	.52	1.00			EML
MCMA	23	1321	1430D	1334	N08	E59	.872	12280	28.0	69D	-N		C	1334	.52	1.00			EML
ATHN	23	1324E	1342	1326	N07	E61	.886	12280	28.1	18D	-N	2	V		.66				DE
47798	23	1342	1405	1347	N06	E64	.907	12280	28.4	23	*-N				.39				2 2 2 9
ARCE	23	1335	1406	1342	N07	E60	.878	12280	28.1	31	-N		C	1342	.56	1.10			
MCMA	23	1348	1403	1351	N04	E67	.926	12280	28.6	15	-N		C	1351	.21	.50			D
GRP47799	23	1424	1433	1425	N15	W20	.494	12273	22.1	9	--F				.31				2 2 2 8
MCMA	23	1423	1438	1424	N15	W21	.504	12273	22.0	15	-N		C	1424	.31	.30			DH
MEUD	23	1424	1427	1425	N15	W19	.484	12273	22.2	3	-F		C	1425	.31	.30			D
GRP47801	23	1448	1458	1452	N08	E59	.872	12280	28.0	10	--F				.21				2 2 2 7
MCMA	23	1447	1457	1452	N08	E59	.872	12280	28.0	10	-N		C	1452	.21	.40			D
HUAN	23	1449	1458	1451	N07	E59	.870	12280	28.0	9	-F	2	C	1451	.21	.44			D
GRP47803	23	1555	1605	1558	N04	E63	.897	12280	28.4	10	-N				.70				3 3 3 9
MCMA	23	1554	1605	1557	N04	E65	.912	12280	28.5	11	-N		C	1557	.62	1.50			E
HUAN	23	1554	1606	1559	N02	E62	.887	12280	28.3	12	-N	1	C	1559	.48	1.02			E
MEUD	23	1555	1605		N04	E63	.897	12280	28.4	10	1F		C	1556	1.03	2.10			E
HUAN	23	1555	1558	1556	N04	E60	.874	12280	28.2	3	-F	1	C	1556					E
GRP47806	23	1759	1816	1805	N07	E57	.853	12280	28.0	17	-N				.60				2 2 2 6
HUAN	23	1758	1810	1805U	N06	E57	.851	12280	28.0	12	-N	1	C	1805	.57	1.08			
MCMA	23	1800	1822	1805	N07	E56	.844	12280	28.0	22	-N		C	1805	.62	1.20			E
GRP47807	23	1918	1925	1920	N15	W23	.525	12273	22.1	7	--N				.25				3 3 3 3
PALE	23	1917	1926	1921U	N15	W22	.514	12273	22.2	9	-N	2	C		.27				F
MCMA	23	1919	1925	1920	N15	W24	.535	12273	22.0	6	-N		C	1920	.26	.30			DH
HUAN	23	1919	1923	1920	N15	W23	.525	12273	22.1	4	-F	1	C	1920	.21	.24			D
GRP47808	23	1949	1957	1950	N16	W23	.535	12273	22.1	8	--N				.58				2 2 2 2
PALE	23	1948	1958	1950U	N16	W22	.525	12273	22.2	10	-N	2	C		.63				DE H
MCMA	23	1949	1956	1950	N15	W24	.535	12273	22.0	7	-N		C	1950	.52	.60			EH
GRP47809	23	2041	2056	2045	N15	W24	.535	12273	22.1	15	--N				.51				3 3 3 3
PALE	23	2040E	2053D	2044U	N16	W22	.525	12273	22.2	13D	-N	2	C		.55				DE H
HUAN	23	2042	2055	2046	N15	W24	.535	12273	22.1	13	-N	2	C	2046	.46	.55			
MCMA	23	2042	2056	2045	N15	W25	.546	12273	22.0	14	-B		C	2045	.52	.60			EH
GRP47810	23	2135E	2142	2139	N15	W25	.546	12273	22.0	7	--F				.44				2 2 2 3
MCMA	23	2135E	2143D	2139	N15	W26	.557	12273	21.9	8D	-F		C	2139	.26	.30			D
PALE	23	2138E	2141	2138U	N15	W23	.525	12273	22.2	3D	-F	2	V		.62				
811 PALE	23	2218E	2226D	2219	N15	W23	.525	12273	22.2	8D	--N	2	V		.83				3
GRP47812	23	2311	2318	2313	N15	W25	.546	12273	22.1	7	--N				.45				3 3 3 4
MANI	23	2310	2318	2313	N15	W26	.557	12273	22.0	8	-N	1		2313	.83	.98			
CRON	23	2311	2318	2313	N16	W24	.545	12273	22.2	7	-N		V	2313	.30				
PALE	23	2312	2317	2313	N15	W24	.535	12273	22.2	5	-N	2	V		.21				F
GRP47816	24	0227	0236	0230	N07	E55	.835	12280	28.2	9	-F				.27				2 2 1 6
PALE	24	0221E	0228	0221U	N05	E55	.831	12280	28.2	7D	-F	2	C		.27				
KODA	24	0232	0244	0238	N08	E55	.837	12280	28.2	12	-N		V	0238			1.40		E
7 STATIONS REPORTING GROUP 47817. 0 STATIONS OBSERVING AND NOT REPORTING.																			
GRP47817	24	0304	0358	0312	N16	W25	.555	12273	22.3	54	-B				1.75				4 4 4 6
MITK	24	0303	0450	0308	N18	W24	.565	12273	22.3	107	1N		C	0308	2.17	2.60			E
CRON	24	0305	0345	0312	N16	W24	.545	12273	22.3	40	-N		V	0312	2.00				
PALE	24	0311E	0329D	0311U	N16	W23	.534	12273	22.4	18D	-B	1	C		1.80				Z F
TEHR	24	0315E	0410D	0315U	N15	W27	.568	12273	22.1	55D	-B	2	V		1.83				F

SOLAR FLARES
Confirmed

MARCH 1973

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
47817	24	0303	0424	0323	N16	W24	.545	12273	22.3	81	*1N				3.12				3 3 3 7
CULG	24	0301	0553D	0328	N17	W23	.545	12273	22.4	172D	1N		P	0328	2.17	2.50			
MANI	24	0304U	0356U	0321U	N15	W27	.568	12273	22.1	52D	-B	2		0321	1.44	1.75			
KODA	24	0320	0424	0320	N17	W23	.545	12273	22.4	64	2N		C	0337	5.76	5.80	2.16		DK
MANI	24	0405U	0405U	0405U	N15	W27	.568	12273	22.1		-N	1		0405	.93	1.12			
GRP47818	24	0457	0506	0501	N15	W27	.568	12273	22.8	9	--N				.65				3 3 3 7
CRON	24	0456	0509	0459	N14	W26	.548	12273	22.3	13	-N		V	0459	.40				
MITK	24	0457	0504	0500	N15	W29	.598	12273	22.0	7	-N		C	0500	.62	.70			D
MANI	24	0503U	0505U	0503U	N16	W27	.577	12273	22.2	2D	-N	2		0503	.93	1.13			
GRP47819	24	0611	0629	0615	N15	W28	.579	12273	22.2	18	--F				.64				2 2 2 3
BUCA	24	0610	0635		N14	W27	.559	12273	22.2	25	-F		C	0615	.55	.70			
MITK	24	0612	0622	0615	N16	W29	.598	12273	22.1	10	-N		C	0615	.72	.90			D
GRP47820	24	0638	0651	0641	N16	W27	.577	12273	22.3	13	-B				1.06				4 4 3 5
BUCA	24	0637	0655		N15	W28	.579	12273	22.2	18	-N		C	0639	1.66	2.00			
ABST	24	0638	0650	0640	N17	W29	.606	12273	22.1	12	-N		C	0640	.90	1.10			DZ
KODA	24	0639	0649	0639	N17	W23	.545	12273	22.6	10	-B		V	0639			1.80		D
MANI	24	0643U	0646U	0644U	N15	W29	.590	12273	22.1	3D	-B	1		0644	.62	.77			
GRP47821	24	0921	0936	0924	N14	W29	.582	12273	22.2	15	-N				.91				3 3 2 7
ISTA	24	0920	0945		N14	W28	.570	12273	22.3	25	-N								
MEUD	24	0921	0930	0924	N15	W30	.601	12273	22.1	9	-N		C	0924	.52	.60			E
UPIC	24	0925E	0933		N14	W30	.593	12273	22.1	8D	-N		P	0925	1.29				F
GRP47826	24	1153	1206	1158	N15	W31	.612	12273	22.2	13	-B				.83				4 4 4 8
MEUD	24	1152	1205	1158	N15	W32	.623	12273	22.1	13	-B		C	1158	.72	.90			H
RAMY	24	1153	1208	1158	N15	W30	.601	12273	22.2	15	-F	3	C		.93				DE
CANR	24	1153	1207	1157	N16	W31	.620	12273	22.2	14	-B		V	1156	.80	.90			
UPIC	24	1157E	1204	1200	N15	W32	.623	12273	22.1	7D	-B		P	1200	.85				L
3 STATIONS REPORTING GROUP 47827. 5 STATIONS OBSERVING AND NOT REPORTING.																			
GRP47827	24	1251	1312	1302	N07	E46	.743	12280	28.0	21	--N				.58				3 3 3 8
UPIC	24	1243	1311	1302	N06	E46	.739	12280	28.0	28	-N		P	1302	.85				
RAMY	24	1258	1318	1301	N07	E47	.754	12280	28.1	12	-N	4	C		.37				DE
MCMA	24	1300E	1314D	1302	N07	E46	.743	12280	28.0	14D	-N		C	1302	.52	.80			E
827 UPIC	24	1253	1311	1302	N07	E53	.816	12280	28.5	18	*-F		P	1302	.63				F 8
GRP47830	24	1332	1342	1336	N07	E47	.754	12280	28.1	10	--N				.32				3 3 3 10
MCMA	24	1330	1342	1335	N07	E46	.743	12280	28.0	12	-N		C	1335	.31	.50			D
TEHR	24	1333	1341	1336	N07	E47	.754	12280	28.1	8	-N	3	V		.50				DE
HUAN	24	1334E	1335D		N06	E48	.762	12280	28.2	1D	-F	1	P	1335	.15	.23			D
GRP47831	24	1717	1732	1719	N12	W34	.626	12273	22.2	15	--N				.51				3 3 3 4
PALE	24	1715	1728	1717	N12	W34	.626	12273	22.2	13	-N	1	C		.55				F
HUAN	24	1718	1719D		N13	W34	.632	12273	22.2	1D	-N	1	P	1719	.48	.60			E
MCMA	24	1718	1736	1720	N12	W35	.638	12273	22.1	18	-N		C	1720	.52	.70			E
832 PALE	24	1837E	1843	1839U	N16	E49	.805	12280	28.5	6D	--F	2	V		.21				2
GRP47833	24	1900E	1906	1901	N06	E45	.728	12280	28.2	6	--F				.39				2 2 2 3
PALE	24	1900E	1906	1901U	N05	E44	.713	12280	28.1	6D	-F	2	V		.62				F
HUAN	24	1904E	1906		N06	E45	.728	12280	28.2	2D	-F	1	C	1905	.15	.22			D
GRP47835	25	0036	0057	0044	N15	W39	.700	12273	22.1	21	-B				1.11				4 4 4 5
PALE	25	0031	0054	0044	N15	W38	.689	12273	22.2	23	-B	2	C		1.27				F
PALE	25	0031	0054	0036	N15	W38	.689	12273	22.2	23	-N	2	C		.45				F
MANI	25	0035U	0052U	0046	N15	W39	.700	12273	22.1	17D	-B	2		0046	1.24	1.72			
CRON	25	0039	0105	0043	N16	W40	.716	12273	22.0	26	-B		V	0043	.80				
MITK	25	0040	0053	0044	N15	W38	.689	12273	22.2	13	-N		C	0044	1.13	1.60			E
GRP47837	25	0455	0525	0501	N15	W42	.732	12273	22.1	30	-N				1.03				3 3 3 3
CULG	25	0454	0544	0458	N15	W42	.732	12273	22.1	50	1N		C	0458	1.75	2.50			
CRON	25	0456	0510	0459	N15	W42	.732	12273	22.1	14	-N		V	0459	.40				
MANI	25	0505U	0521U	0506	N14	W42	.727	12273	22.1	16D	-N	2		0506	.93	1.39			
GRP47838	25	0908	0935	0916	N15	W43	.742	12273	22.2	27	-B				1.54				6 6 6 8
KHAR	25	0905E	0935	0916	N18	W43	.757	12273	22.2	30D	1N		V	0920	2.84	4.40	2.40		EH
UPIC	25	0906	0930	0916	N16	W44	.757	12273	22.1	24	1B		P	0916	1.90				
MANI	25	0907	0923U	0916	N15	W45	.762	12273	22.0	16D	-B	2		0916	1.13	1.75			
CAPS	25	0910E	0936D		N12	W42	.717	12273	22.2	26D	1B	3	V	0917	1.50	2.20		(450)	H
CANR	25	0912	0915D	0915	N16	W39	.706	12273	22.5	3D	-N		V	0915	.80	1.10			
ARCE	25	0915E	0938D		N14	W45	.758	12273	22.0	23D	-B		C	0918	1.08	1.70			
841 HUAN	25	1443	1458	1453U	N14	W47	.778	12273	22.1	9	--F	1	C	1453					3

SOLAR FLARES
Confirmed

MARCH 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HOMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP47842	25	1500	1512	1502	N14	W47	.778	12273	22.1	12	-N				.60				3 3 2 3
HUAN	25	1500	1513	1501	N15	W48	.792	12273	22.0	13	-F	1	C	1501					
CANR	25	1500	1510	1502	N16	W46	.777	12273	22.2	10	-N		V	1503	.40	.60			
CAPS	25	1501E	1504D		N12	W46	.760	12273	22.2	3D	-B	1	S	1504	.80	1.00			C
843 HUAN	25	1616	1635	1619	N15	W48	.792	12273	22.1	19	-N	1	C	1619					E 2
844 HUAN	25	1654	1656	1655	N17	W48	.800	12273	22.1	2	--F	1	C	1655	.28	.42			D 4
845 PALE	25	1731	1740D	1735U	N08	E32	.577	12280	28.1	9D	--F	2	C		.36				F H 2
846 PALE	25	1905	1912	1908	N17	W45	.771	12273	22.4	6	--F	3	V		.48				F 2
847 PALE	25	1929	1941	1933	N13	W48	.784	12273	22.2	12	--N	3	V		.36				F 2
GRP47849	25	2047	2101	2056	N14	W50	.807	12273	22.1	14	--F				.42				2 2 2 2
PALE	25	2047	2101	2059	N14	W50	.807	12273	22.1	14	-N	3	C		.55				F
PALE	25	2047	2101	2050	N14	W50	.807	12273	22.1	14	-F	3	C		.27				F
RAMY	25	2052E	2055D	2053U	N13	W49	.794	12273	22.2	3D	-F	3	C		.28				DE
851 VORO	25	2311E	2319		N13	W55	.849	12273	21.8	8D	--B		C	2312	.48	.82		66	CDJL 4
GRP47852	25	2356	0009	2359	N15	W53	.838	12273	22.0	13	-N				1.09				3 3 3 5
CRON	25	2356	0010	2359	N15	W53	.838	12273	22.0	14	-N		V	2359	.80				
PALE	25	2358E	0009	2358U	N15	W52	.829	12273	22.1	11D	1B	2	C		1.44				F
MANI	25	2359U	0009U	0000	N14	W53	.835	12273	22.0	10D	-N	2		0000	1.03	1.81			
GRP47854	26	0249	0304	0253	N08	E27	.511	12280	28.1	15	--N				.65				3 3 3 4
MANI	26	0249	0310	0253	N08	E27	.511	12280	28.1	21	-N	2		0253	.83	.95			
CRON	26	0251E	0258	0253	N08	E27	.511	12280	28.1	7D	-N		V	0253	.50				
PALE	26	0253E	0304	0253	N08	E27	.511	12280	28.1	11D	-N	2	V		.62				F
GRP47855	26	0352	0407	0357	N14	W57	.868	12273	21.9	15	-F				1.00				3 3 3 4
CULG	26	0352E	0359D	0354	N14	W57	.868	12273	21.9	7D	1N		P	0354	1.55	3.00			
MANI	26	0353U	0401U	0354U	N14	W57	.868	12273	21.9	8D	-F	2		0354	.62	1.13			
TEHR	26	0356E	0407D	0403	N13	W58	.874	12273	21.8	11D	-F	2	V		.83				F H
GRP47859	26	1916	1929	1921	N15	W63	.915	12273	22.1	13	-N				.55				4 4 3 4
PALE	25	1915	1929	1919	N17	W63	.918	12273	22.1	14	-N	2	V		.81				
RAMY	26	1915	1932	1919	N14	W62	.906	12273	22.2	17	-N	3	C		.46				DE
MCMA	25	1916	1926	1920	N15	W64	.921	12273	22.0	10	-N		C	1920	.31	.70			D
BOUL	26	1918	1930	1921	N14	W63	.913	12273	22.1	12	-F	3	V						
RAMY	26	1921E	1933	1923U	N14	W60	.892	12273	22.3	12D	-N	3	V		.52				DE
4 STATIONS REPORTING GROUP 47860. 0 STATIONS OBSERVING AND NOT REPORTING.																			
GRP47860	26	1933	2108	1959	N10	E22	.464	12280	28.5	95	1N				1.76				4 3 2 4
BOUL	26	1930E	2100U	1955U	N07	E22	.438	12280	28.5	90D	1N	3	V	1955		3.80			
RAMY	26	1931E	2051D	1931U	N12	E21	.471	12280	28.4	80D	-F	3	C		.74				F S
PALE	26	1932	2020	1957	N12	E23	.494	12280	28.5	48	-B	2	V		1.71				DE
MCMA	26	1937	2115	2004	N12	E22	.483	12280	28.5	98	1N		C	2004	1.80	2.10			EL
47860	26	1931	2022	1943	N14	E21	.492	12280	28.4	51	*-B				.89				2 2 2 3
RAMY	26	1931E	2051D	1941U	N12	E21	.471	12280	28.4	80D	-B	3	C		.74				F S
PALE	26	1933E	1952	1945U	N15	E21	.503	12280	28.4	19D	-B	2	V		1.03				DE
GRP47863	26	2123	2134	2125	N16	W65	.929	12273	22.0	11	--F				.31				2 2 1 3
MCMA	26	2122	2129	2124	N16	W66	.935	12273	21.9	7	-F		C	2124	.31	.90			E
BOUL	26	2124	2138D	2125	N15	W64	.921	12273	22.1	14D	-F	3	V	2125		1.80			
GRP47864	26	2152	2205	2156	N16	W66	.935	12273	22.0	13	--F				.26				2 2 1 3
BOUL	26	2150	2205	2155	N15	W65	.927	12273	22.0	15	-F	3	V	2155		1.50			
MCMA	26	2154	2201D	2156	N16	W66	.935	12273	22.0	7D	-F		C	2156	.26	.70			D
GRP47865	26	2207	2220	2209	N17	W65	.930	12273	22.0	13	-N				.63				2 2 1 3
PALE	26	2206E	2220	2208	N17	W65	.930	12273	22.0	14D	-N	1	C		.63				F
BOUL	26	2208	2219	2210	N16	W65	.929	12273	22.0	11	-N	3	V	2210		2.00			
GRP47867	27	0922	0936	0924	N05	E08	.246	12280	28.8	14	--F				.74				6 6 6 8
KHAR	27	0920E	0940D		N05	E07	.237	12280	27.9	20D	-F		V	0925	1.24				EH
ARCE	27	0920E	0935D		N05	E07	.237	12280	27.9	15D	-F		C	0925	.43	.40			H
CANR	27	0921	0944		N05	E08	.246	12280	28.0	23	-N		V	0923	.60	.60			
MONT	27	0922	0931	0923	N06	E09	.270	12280	28.1	9	-N		C	0923	1.13				E
MEUD	27	0923	0930	0924	N06	E08	.260	12280	28.0	7	-F		C	0924	.52	.50			E
CRON	27	0923E	0934		N04	E07	.223	12280	27.9	11D	-F		V		.50				
GRP47869	27	1442	1455	1444	N15	W74	.972	12273	22.1	13	--F				.34				2 2 2 7
RAMY	27	1441	1500	1443	N15	W74	.972	12273	22.1	19	-F	2	C		.37				DE
MEUD	27	1443	1450	1444	N15	W73	.968	12273	22.1	7	-F		C	1444	.31				

SOLAR FLARES
Confirmed

MARCH 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP47870	27	1446	1501	1448	S04	E78	.977	12293	2.5	15	--F				.34				6 6 6 8
RAMY	27	1445	1507	1447	S03	E77	.973	12293	2.4	22	-N	3	C		.23				DE
HEUD	27	1446	1455	1447	S04	E75	.964	12293	2.2	9	-F		C	1447	.31				D
CANR	27	1446E	1500		S03	E75	.965	12293	2.2	140	-F		V		.50				
HCMA	27	1447	1500	1449	S04	E80	.984	12293	2.8	13	-N		C	1449	.31				D
ATHN	27	1448E	1451U	1448U	S06	E78	.976	12293	2.5	30	-F	2	V		.50				F
HUAN	27	1452E	1454U		S05	E80	.983	12293	2.6	20	-F	1	P	1454	.21				D
GRP47871	27	1637	1730	1706	N05	E04	.216	12280	28.0	53	-F				1.18				5 4 4 6
RAMY	27	1629E	1645	1630U	N13	E10	.377	12280	28.4	160	-F	3	V		.31				DE
HCMA	27	1640	1735	1711	N04	E03	.194	12280	27.9	55	-N		C	1711	1.03	1.00			EKL
HEUD	27	1643	1655D		N04	E04	.200	12280	28.0	120	1F		C	1648	2.17	2.10			U
CANR	27	1700E	1735	1708	N03	E03	.178	12280	27.9	350	-F		V		1.70				
RAMY	27	1700E	1720	1700U	N04	E05	.206	12280	28.1	200	-F	3	V		1.29				U S
HUAN	27	1704E	1728D		N03	E04	.184	12280	28.0	240	-N	2	P	1708	.62	.62			E
GRP47872	27	2024	2036	2028	S05	E75	.964	12293	2.5	12	--F				.38				1 1 1 3
PALE	27	2024	2029D	2028	S07	E75	.963	12293	2.6	50	-F	2	C		.36				
PALE	27	2025E	2036	2027U	S04	E75	.964	12293	2.5	110	-F	2	V		.31				
873 PALE	27	2055E	2103	2056	N08	E02	.258	12280	28.0	80	--F	2	C		.27				F 3
GRP47874	27	2124	2146	2130	N16	W76	.980	12273	22.2	22	-B				.93				3 2 1 3
RAMY	27	2124	2140D		N15	W77	.983	12273	22.1	160	-B	2	V						DE
HCMA	27	2127	2131D	2129	N17	W85	.999	12273	21.5	40	-N		C	2129					
PALE	27	2128E	2146	2130U	N16	W79	.977	12273	22.3	180	1B	3	V		.93				DE
876 PALE	27	2239E	2243	2240U	S04	E72	.949	12293	2.3	40	--F	3	V		.26				2
GRP47876	28	0100	0132	0107	N03	W01	.170	12280	28.0	32	-N				1.66				3 3 3 4
CRON	28	0100D	0130	0109	N04	W02	.190	12280	27.9	300	1N		V	0100	2.00				
PALE	28	0101	0128	0106	N03	W01	.170	12280	28.0	27	-B	2	C		1.44				F H
PALE	28	0103E	0131	0106	N04	E01	.187	12280	28.1	280	-B	3	V		1.34				U H
MANI	28	0106U	0135	0107	N03	W02	.173	12280	27.9	290	-N	2		0107	1.55	1.58			
GRP47879	28	0334	0340	0335	N08	W03	.260	12280	27.9	6	--F				.69				2 2 2 4
MANI	28	0333	0340	0335	N08	W02	.257	12280	28.0	7	-F	2		0335	.83	.86			
PALE	28	0334	0340	0335	N08	W03	.260	12280	27.9	6	-F	2	C		.55				
GRP47881	28	1025	1117	1039	N15	W87	1.000	12273	21.9	52	-N				.64				5 4 4 6
TEHR	28	1020	1035D	1035U	N16	W85	.999	12273	22.1	150	-N	3	C		.26				DE
CANR	28	1030	1100	1035	N15	W90	1.000	12273	21.7	30	1B		V	1035	1.20	4.80			
UPIO	28	1039E	1135		N15	W88	1.000	12273	21.8	560	1N		P	1039	.63				
RAMY	28	1046E	1115	1046U	N15	W84	.998	12273	22.1	290	-N	2	C		.46				DE
ZURI	28	1128	1154	1136	N16	W82	.995	12273	22.3	26	1N		C	1136	1.05	10.00			
GRP47882	28	1748	1909	1814	N04	W12	.277	12280	27.8	81	--F				.91				2 2 2 3
RAMY	28	1748	1909	1811	N03	W12	.266	12280	27.8	89	-N	3	C		1.02				DE
RAMY	28	1748	1909	1749	N03	W12	.266	12280	27.8	89	-F	3	C		.37				DE
PALE	28	1756	1836D	1816	N04	W12	.277	12280	27.8	40D	-F	2	C		.80				F
883 PALE	28	2000	2008D	2004	S07	E66	.910	12293	2.8	80	--N	2	C		.27				2
GRP47884	28	2058E	2111	2103	S07	E63	.887	12293	2.6	13	-N				.47				2 2 2 2
PALE	28	2058E	2111	2100	S07	E66	.910	12293	2.8	130	-N	3	C		.27				F
RAMY	28	2100E	2110	2105	S06	E60	.862	12293	2.4	100	-N	3	V		.66				DE
885 PALE	29	0340	0352	0345	S06	E61	.871	12293	2.7	12	-N	2	C		.45				F 3
886 CRON	29	0459E	0504	0459E	S08	E58	.843	12293	2.6	50	--F		V	0459	.40				1
GRP47887	29	1128	1150	1135	S07	E54	.805	12293	2.5	22	--N				.30				3 3 3 5
CATA	29	1125E	1135D	1125	S06	E53	.795	12293	2.5	100	-N	3		1125	.29	.47		(195)	
CAPS	29	1130E	1155D		S08	E55	.814	12293	2.6	250	-N	3	V	1133	.30	.60			
CANR	29	1130	1144	1135	S07	E54	.805	12293	2.5	14	-N		V	1135	.30	.50			
889 RAMY	29	1912E	1918D	1912U	S06	E49	.751	12293	2.5	60	--F	3	V		.21				DE 2
890 PALE	29	1925E	1929	1926	S03	E45	.707	12293	2.2	40	--F	3	V		.15				1
GRP47891	29	2004	2025	2012	S06	E49	.751	12293	2.5	21	--F				.24				3 3 2 3
RAMY	29	2000E	2007D		S06	E49	.751	12293	2.5	70	-F	2	V						DE
HUAN	29	2003	2025D		S07	E49	.750	12293	2.5	220	-F	1	P	2010	.26	.39			D
PALE	29	2009	2015D	2012	S06	E50	.762	12293	2.6	60	-N	3	V		.21				
892 PALE	29	2124	2128	2126	N03	W25	.450	12280	28.0	4	--N	3	V		.31				1
893 PALE	29	2203E	2210	2205	S06	E47	.728	12293	2.4	70	--N	3	V		.36				1

SOLAR FLARES
Confirmed

MARCH 1973

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
	29	2219	2236	NO FLARE PATROL															
GRP47897	30	0711	0717	0713	S07	E37	.598	12293	2.1	6	-N				.80				2 2 2 3
ABST	30	0711	0716	0713	S06	E37	.599	12293	2.1	5	-N		C	0713	.90	1.10			DZ
CRON	30	0713E	0718	0713E	S07	E37	.598	12293	2.1	5D	-N		V	0713	.70				
GRP47901	30	0843	0858	0851	S03	E35	.574	12293	2.0	15	--N				.41				3 3 3 8
ARCE	30	0840	0855	0849	S04	E34	.558	12293	1.9	15	-N		C	0849	.61	.70			
MONT	30	0844	0856	0851	S02	E36	.590	12293	2.1	12	-N		C	0851	.21				E
MEUD	30	0846	0904	0852	S03	E36	.588	12293	2.1	18	-F		C	0852	.41	.50			E
MEUD	30	0846	0904	0846	S03	E36	.588	12293	2.1	18	-F		C	0852	.41	.50			E
GRP47902	30	0935	0951	0938	N07	W27	.503	12280	28.4	16	--N				.45				3 3 3 9
MONT	30	0934	0945D	0937	N08	W25	.484	12280	28.5	11D	-N		C	0937	.21				E
ARCE	30	0935E	0955D		N07	W28	.516	12280	28.3	20D	-B		C	0940	.35	.40			
CANR	30	0935	0947	0938	N07	W29	.530	12280	28.2	12	-N		V	0938	.80	1.00			
GRP47905	30	1223	1232	1226	N12	E76	.978	12298	5.2	9	-B				.44				5 5 5 8
CANR	30	1220	1235	1225	N12	E76	.978	12298	5.2	15	-B		V	1225	.60	1.90			
ATHN	30	1222	1236	1226	N10	E77	.980	12298	5.3	14	-B	3	C		.50				F
HUAN	30	1224	1228	1226	N11	E75	.973	12298	5.1	4	-N	2	C	1226	.26				
MEUD	30	1224	1229	1226	N12	E77	.981	12298	5.3	5	-N		C	1226	.52				D
ARCE	30	1225E	1225D		N14	E76	.979	12298	5.2		-B		C	1225	.32				T
GRP47907	30	1328	1343	1329	S03	E33	.546	12293	2.0	15	--N				.58				3 3 2 5
MEUD	30	1326	1340	1327	S04	E34	.558	12293	2.1	14	-N		C	1333	.83	1.00			E
MEUD	30	1326	1340	1333	S04	E34	.558	12293	2.1	14	-N		C	1333	.83	1.00			E
ATHN	30	1328E	1330D	1328U	S04	E32	.529	12293	2.0	2D	-F	2	C		.33				DE
CANR	30	1329	1345	1331	S02	E32	.533	12293	2.0	16	-N		V			1.40			
CANR	30	1330	1410	1345	S03	E35	.574	12293	2.2	40	-F		V			.50			
GRP47908	30	1526	1537	1529	S06	E32	.527	12293	2.0	11	--F				.49				2 2 2 2
RAMY	30	1525	1536	1529	S07	E32	.526	12293	2.0	11	-N	2	C		.48				DE
MEUD	30	1527	1538		S05	E32	.528	12293	2.0	11	-F		C	1530	.52	.60			E
909 RAMY	30	1546	1606D	1555	S04	E32	.529	12293	2.1	20D	--F	3	C		.28				DE 3
GRP47910	30	1841	1852	1844	S08	E31	.512	12293	2.1	11	--N				.42				2 2 2 2
RAMY	30	1841	1852	1844	S07	E30	.497	12293	2.0	11	-N	3	C		.37				DE
HUAN	30	1847E	1847D		S08	E31	.512	12293	2.1		-N	1	P	1847	.48	.54			
	30	1952	2048	NO FLARE PATROL															
	30	2054	2224	NO FLARE PATROL															
	30	2228	2230	NO FLARE PATROL															
911 PALE	30	2245E	2249	2246U	S05	E26	.437	12293	1.9	4D	--N	2	C		.27				4
912 PALE	30	2328E	2333	2330U	S07	E31	.512	12293	2.3	5D	--N	3	C		.19				3
913 PALE	30	2350E	2354	2350U	S09	E28	.467	12293	2.1	4D	--N	3	C		.63				F 4
GRP47919	31	0223	0230	0226	N11	E68	.939	12298	5.2	7	--F				.57				2 2 2 3
PALE	31	0223	0230D	0225U	N11	E70	.950	12298	5.3	7D	-N	2	C		.63				F
CRON	31	0226E	0229	0226	N11	E66	.927	12298	5.1	3D	-F		V	0226	.50				
921 MANI	31	0510	0530	0514	S05	E26	.437	12293	2.2	20	--N	2		0514	.52	.57			2
922 MANI	31	0515	0527U	0516	N07	W38	.647	12280	28.4	12D	--F	2		0516	.41	.54			2
GRP47923	31	0649	0656	0650	S06	E25	.420	12293	2.2	7	--F				.41				2 2 2 3
MANI	31	0649	0655	0650	S06	E24	.405	12293	2.1	6	-N	2		0650	.52	.56			
CAPS	31	0650E	0656D		S05	E25	.421	12293	2.2	6D	-F	2	V	0652	.30	.40			
GRP47926	31	0902	0918	0907	N14	E69	.948	12298	5.6	16	1B				1.30				6 6 6 6
ARCE	31	0855E	0911		N13	E68	.942	12298	5.5	16D	-B		C	0908	.26				DH
CANR	31	0900	0925	0907	N17	E68	.947	12298	5.5	25	-N		V	0908	.80	1.60			
MONT	31	0904	0916	0908	N14	E70	.953	12298	5.6	12	1N		C	0908	2.27				
MANI	31	0904	0928	0907	N13	E69	.947	12298	5.6	24	1N	2		0907	1.24	2.65			
CAPS	31	0904E	0915D	0909	N12	E70	.951	12298	5.6	11D	1B	2	V	0907	1.50			(220)	C
CATA	31	0905	0915	0905	N15	E70	.954	12298	5.6	10	1B	1		0905	1.73			(234)	
GRP47927	31	1025	1053	1033	N10	W32	.587	12280	29.0	28	--N				.65				2 2 2 3
CATA	31	1025	1055	1030	N10	W32	.587	12280	29.0	30	-N	3		1030	.58	.71		(200)	
MONT	31	1025	1051	1036	N10	W32	.587	12280	29.0	26	-N		C	1036	.72				H
928 HUAN	31	1348	1348		N12	E64	.916	12298	5.4	8	--F	1	C	1343	.26				4

SOLAR FLARES
Confirmed

MARCH 1973

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
929 HUAN	31	1421	1429	1424	N11	W37	.654	12280	28.8	8	--F	1	C	1424	.26	.33			2
GRP47932	31	1713	1718	1715	N07	W46	.742	12280	28.3	5	--F								2 1 0 5
BOUL	31	1713	1718	1715	N07	W46	.742	12280	28.3	5	-F	3	V						
HUAN	31	1717	1733	1727	N08	W36	.626	12280	29.0	16	-F	1	C	1727					T
GRP47933	31	1730	1733	1730	S08	E19	.324	12293	2.2	3	--F				.19				2 2 1 5
PALE	31	1729	1733	1729U	S10	E17	.295	12293	2.0	4	-N	2	C		.19				F
BOUL	31	1730	1733	1731	S05	E21	.358	12293	2.3	3	-F	3	V						
GRP47935	31	1949	2008	1952	N09	W35	.619	12280	29.2	19	--N				.48				3 3 2 3
RAMY	31	1947	2006	1950	N08	W37	.639	12280	29.0	19	-F	2	C		.56				DE
PALE	31	1950	2005	1952	N10	W36	.636	12280	29.1	15	-N	3	C		.36				
BOUL	31	1951	2014	1953	N09	W33	.594	12280	29.4	23	-B	3	V						
GRP47936	31	2000	2012	2002	S08	E17	.291	12293	2.1	12	--N				.60				3 3 2 3
RAMY	31	1959	2011	2002	S09	E16	.276	12293	2.0	12	-N	3	C		.84				DE H
PALE	31	2000	2010	2002	S10	E17	.295	12293	2.1	10	-F	3	C		.36				H
BOUL	31	2001	2016	2003	S05	E19	.325	12293	2.3	15	-N	2	V						
937 PALE	31	2100E	2102D	2102	N12	E59	.879	12298	5.3	2D	--N	3	V		.21				F 1
	31	2116	2127	NO FLARE PATROL															
GRP47938	31	2218	2235	2222	N09	W40	.680	12280	28.9	17	--B				.82				2 2 2 2
VORO	31	2218	2234	2222	N08	W40	.675	12280	28.9	16	-B		C	2222	1.11	1.46		74	EL
MANI	31	2222U	2235	2222U	N09	W39	.668	12280	29.0	13D	-N	2		2222	.52	.70			
939 VORO	31	2229	2241	2232	N16	E61	.902	12298	5.5	12	--B		C	2232	.28	.59		66	DHL 2
GRP47941	31	2347	2358	2350	S03	E20	.346	12293	2.5	11	--B				.76				2 2 2 2
VORO	31	2347	2357	2349	S02	E19	.334	12293	2.4	10	-B		C	2349	1.20	1.25		72	DL
MANI	31	2348U	2358	2350	S04	E21	.359	12293	2.6	10D	-N	1		2350	.31	.33			

In the importance column "--" signifies the subflare has been confirmed by the NOAA grouping program but is not included in the I.A.U. Quarterly Bulletin on Solar Activity. These subflares are also not included in the Flare Index below.

DAILY FLARE INDICES

Date	Flare Index	HR OBS	Date	Flare Index	HR OBS	Date	Flare Index	HR OBS
730301	208.47	22.9	730312	115.30	23.5	730324	30.48	24.0
730302	0.00	17.9	730313	47.82	23.5	730325	34.69	24.0
730303	0.00	16.7	730314	71.38	23.6	730326	25.32	24.0
730305	25.81	23.9	730315	5.16	24.0	730327	11.67	24.0
730306	22.43	24.0	730316	16.24	22.9	730328	17.87	24.0
730307	6.76	24.0	730318	15.71	22.3	730329	1.07	23.7
730308	19.68	24.0	730319	2.30	23.7	730330	4.85	21.5
730309	80.61	22.9	730320	17.73	24.0	730331	8.92	23.8
730310	13.16	22.3	730321	4.84	24.0			
730311	14.10	23.9	730323	12.09	24.0			

When no Flare Index is given, it is 0 for that day.

SOLAR FLARES
Unconfirmed
MARCH 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. HER. DIST.	CENTRAL DISTANCE	HEMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
536 MANI	01	0715	0730	0719	N10	W06	.313	12246	28.9	15	-F	2		0719	.52	.54			4
540 KODA	02	0227	0300	0232	N07	W17	.377	12246	28.8	33	-N		P	0245	1.75	1.80	1.44		E 6
551 VORO	05	0021	0108	0026	N06	W55	.833	12246	28.9	47	1F		C	0026	1.47	2.20		59	E 4
552 HITK	05	0158	0234	0222	S17	E76	.964	12261	10.8	36	1F		C	0222	1.44				E 5
553 ISTA	05	0820	0824		S17	E70	.932	12261	10.6	4	-F								D 7
559 HITK	05	2333E	0018	2336	S16	E61	.868	12261	10.6	45D	-B		C	2336	.52	1.00			E 6
GRP47561	06	0432E	0443	0440	S17	E54	.804	12261	10.2	11	-F				.44				2 2 2 5
CRON	06	0432E	0435		S17	E54	.804	12261	10.2	3D	-F		V		.25				
MANI	06	0434E	0450	0440	S16	E54	.804	12261	10.2	16D	-N	1		0440	.62	1.03			
562 MONT	06	0819	0854	0821	S17	E57	.833	12261	10.6	35	-N		C	0821	.52				H 5
565 ATHN	06	1057	1108	1058	N09	W70	.949	12246	1.2	11	-F	2	C		.17				DE 7
569 KODA	07	0150E	0313	0310	S17	E49	.752	12261	10.8	83D	-F		P	0220	2.00	2.00	1.40		D 5
570 MANI	07	0409	0415	0410	N09	W82	.993	12246	1.0	6	-F	2		0410	.21	.57			4
577 MANI	08	0050E	0055	0051U	S07	E70	.936	12263	13.3	5D	-N	1		0051	.31	.65			4
GRP47582	08	0824	0840	0827	S07	E68	.923	12263	13.5	16	-N				.31				2 2 1 6
MANI	08	0823	0840	0827	S07	E68	.923	12263	13.4	17	-N	1		0827	.31	.63			
ISTA	08	0825	1010		S07	E67	.916	12263	13.4	105	-N			0825					E
592 HITK	09	0120	0146	0138	S06	E59	.853	12263	13.5	26	-F		C	0138	.93	1.80			D 7
598 TEHR	09	0723E	0731	0727	S07	E55	.815	12263	13.4	8D	-N	3	V		.99				DE 4
608 ATHN	09	0829	0836	0832	S08	E52	.783	12263	13.3	7	-F	2	C		.33				DE 7
601 UPIC	09	1108	1149		S07	E54	.804	12263	13.5	41	1N		P	1109	1.29				FK 2
612 MANI	11	0010	0025	0014	S07	E33	.541	12263	13.5	15	-N	2		0014	.52	.62			7
613 MANI	11	0031	0035	0033	S15	E46	.716	12264	14.5	4	-N	2		0033	.62	.89			5
615 MANI	11	0110	0122	0114	S05	E35	.572	12263	13.7	12	-F	2							7
616 MANI	11	0534	0550	0539	S08	E32	.526	12263	13.6	16	-N	2		0539	.52	.61			5
617 TEHR	11	0702E	0716	0703U	S06	E23	.389	12263	13.0	14D	-N	4	V		.50				F 4
GRP47619	11	0905	0926	0907	S06	E23	.389	12263	13.1	21	-N				.46				2 2 2 8
CATA	11	0905	0925	0905	S06	E23	.389	12263	13.1	20	-N	3		0905	.58	.62		(178)	
ATHN	11	0907E	0926D	0908	S05	E22	.374	12263	13.0	19D	-N	2	C		.33				DE
GRP47620	11	0915	0958	0934	S07	E23	.388	12263	13.1	43	-F				.33				2 2 1 7
KHAR	11	0915E	0930D		S07	E23	.388	12263	13.1	15D	1F		V						B
ATHN	11	0930E	0958	0934	S06	E23	.389	12263	13.1	28D	-N	2	C		.33				DE
GRP47623	11	1210E	1237	1230	S04	E21	.361	12263	13.1	19	-F				.36				2 2 2 7
RAMY	11	1210E	1235	1229U	S03	E20	.348	12263	13.0	17D	-F	3	V		.31				DE
TEHR	11	1230E	1238	1230U	S05	E21	.358	12263	13.1	8D	-F	4	V		.41				F
624 RAMY	11	1256E	1309	1257U	S05	E29	.484	12263	13.7	13D	-F	3	V		.31				DE 6
628 MANI	11	2311	2325	2312	S06	E23	.389	12263	13.7	14	-F	1		2312	.52	.56			4
629 MANI	12	0127	0141	0132	S07	E23	.388	12263	13.8	14	-F	2		0132	.52	.56			4
GRP47631	12	0228	0239	0231	S07	E22	.372	12263	13.8	11	-F				.46				2 2 2 5
CRON	12	0225	0233	0228	S07	E20	.339	12263	13.6	8	-N		V	0228	.40				
MANI	12	0230	0245	0233	S07	E23	.388	12263	13.8	15	-F	2		0233	.52	.56			
632 MANI	12	0333	0350	0335	S17	W19	.358	12261	10.7	17	-N	2		0335	.93	.99			5
635 CAPS	12	0715E	0717D		S18	W21	.393	12261	10.7	2D	-N	1	S	0717	.30	.30			4
637 ATHN	12	1156	1208	1159	S19	E11	.274	12263	13.3	12	-F	3	C		.33				DE 7
643 CRON	13	0127E	0139		N11	W42	.714	12259	9.9	12D	-F		V		.40				4
646 TEHR	13	0335	0339	0336	N10	W43	.721	12259	9.9	4	-N	3	C		.45				DE 5

SOLAR FLARES
Unconfirmed
MARCH 1973

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
647 MANI	13	0442	0449	0444	S06	W02	.040	12263	13.8	7	-F	2		0444	.31	.31			4
649 MANI	13	0543E	0558	0547	S05	W03	.065	12263	13.8	15D	-N	1		0547	.72	.72			5
651 TEHR	13	0646E	0647D	0646U	S09	E01	.036	12263	13.4	1D	-N	3	V		.58				DE 5
655 MONT	13	0929	1013	0939	S12	E18	.315	12264	14.7	44	-N		C	0939	.52				E 9
GRP47656	13	1141	1157	1146	S19	W35	.586	12261	10.9	16	-F				1.14				2 2 2 11
KHAR	13	1139E	1157		S17	W34	.568	12261	10.9	18D	-F		V	1140	1.86				D
UPIC	13	1142	1146D	1146	S21	W35	.595	12261	10.9	4D	-F		P	1146	.42				D
666 MANI	14	0046	0116D	0050	S07	W07	.121	12263	13.9	30D	-N	2		0050	.31	.31			4
670 KODA	14	0148E	0242	0240	S12	E06	.133	12264	14.5	54D	-B		P	0148	1.95	2.00	1.48		E 4
671 MITK	14	0501	0524	0502	S09	W11	.191	12263	13.4	23	-N		C	0502	.83	.80			D 4
672 MANI	14	0511E	0511D	0511U	N09	W61	.890	12259	9.8		-F	2		0511	.31	.60			5
678 RAMY	14	1205	1220	1207	S13	W04	.122	12264	14.2	15	-F	3	V		.26				DE 4
680 RAMY	14	1258	1315	1256	S13	W09	.132	12264	14.2	25	-N	3	V		.41				DE 5
686 CATA	14	1530E	1605	1535	S13	W09	.184	12264	14.0	35D	-N	3		1535	.58	.59		(174)	5
692 MANI	15	0104	0128	0112	S16	W60	.859	12261	10.5	24	-F	2		0112	.41	.75			5
693 VORO	15	0135	0141D	0135	S09	W20	.340	12263	13.6	6D	-N		P	0135	.46	.49		68	DJ 5
GRP47694	15	0145	0235	0148	S08	W19	.323	12263	13.6	50	-F				.47				2 2 2 6
MANI	15	0145	0235	0148	S08	W19	.323	12263	13.8	50	-N	2		0148	.52	.54			
PALE	15	0148E	0149D	0148U	S07	W18	.307	12263	13.7	1D	-F	2	V		.41				
695 KODA	15	0313	0336	0313	N12	W70	.952	12259	9.9	23	1F		V	0313			1.96		E 5
699 CRON	15	0549E	0558	0550	N16	W72	.966	12259	9.8	9D	-F		V	0550	.60				5
700 CATA	15	0750	0800	0755	S15	W69	.927	12261	10.2	10	-N	3		0755	.11			(182)	6
701 CATA	15	0820	0835	0825	N12	W72	.962	12259	9.9	15	-N	3		0825	.29			(170)	6
702 CATA	15	0830	0835	0830	N15	W80	.991	12259	9.4	5	-F	3		0830	.29			(132)	7
703 CATA	15	1015	1205D	1020	N09	W13	.354	12269	14.5	110D	-F	3		1020	.29	.31		(135)	3
706 CATA	15	1330E	1330D	1330	N13	W90	1.000	12259	8.8		-F	3		1330	.17			(148)	5
707 CATA	15	1347E	1408D	1347	N18	W80	.992	12259	9.6	13D	-F	3		1347	.29			(141)	6
708 MEUD	15	1455E	1501		N20	W90	1.001	12259	8.9	6D	-F		C	1455	.72				5
709 CATA	15	1608	1615	1600	S13	W20	.351	12264	14.2	15	-B	3		1600	.58	.61		(214)	6
710 RAMY	15	1735	1742D	1740	S10	W31	.512	12263	13.4	7D	-F	3	C		.66				DE 4
711 BOUL	15	1952	2015U	1956U	S13	W29	.487	12263	13.7	23D	-F	2	V	1956		.70			3
715 MANI	15	2247E	2303	2249	S07	W31	.511	12263	13.6	16D	-F	1		2249	.72	.85			3
716 MANI	15	2303E	2314	2303U	S20	W61	.869	12261	11.4	11D	-F	1		2303	.31	.57			5
719 MEUD	16	0857	0917	0902	N13	W90	1.000	12259	9.6	20	-N		C	0902	.62				7
720 MONT	16	0948	0951	0950	N08	W07	.287	12266	15.9	3	-F		C	0950	.10				6
721 CATA	16	1115	1125	1115	S06	W48	.639	12263	13.5	10	-F	3		1115	.87	1.13		(135)	5
722 CATA	16	1115	1120	1115	S14	W34	.560	12264	13.9	5	-F	3		1115	.11	.14		(141)	5
732 KODA	19	0147E	0209		S18	E61	.869	12276	23.6	22D	1F		P	0147	2.66	2.60			D 4
733 KODA	19	0147E	0330D	0313	S08	W17	.290	12268	17.8	103D	1F		P	0215	2.49	2.40	1.56		EK 3
735 CATA	19	0910	0935	0915	S05	W77	.972	12263	13.6	25	-F	3		0915	.29			(138)	7
736 CATA	19	1230E	1250	1235	N15	E37	.680	12273	22.3	20D	-F	3		1235	.29	.39		(145)	5

SOLAR FLARES
Unconfirmed
MARCH 1973

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hd	MAX. INT. %	
GRP47739	20	0005	0019	0011	N16	E32	.632	12273	22.4	14	-F				.41				2 2 1 5
MANI	20	0000U	0023	0007	N15	E31	.613	12273	22.3	23D	-F	2			.41	.52			
BOUL	20	0010	0015	0014	N17	E32	.639	12273	22.4	5	-F	2	V	0007					
741 KODA	20	0150E	0355	0350	N15	E31	.613	12273	22.4	125D	-8		P	0207	1.07	1.07	1.40		E 4
745 MANI	20	0928	0935U	0931	S12	W78	.974	12264	14.5	7D	-F	2		0931	.31	.75			12
747 ZURI	20	1215	1223	1217	N15	E21	.585	12273	22.1	8	-8		C	1217	1.25				6
749 VORO	20	2230	2233	2230	N18	E14	.479	12273	22.0	3	-8		C	2230	.28	.30		74	E 5
751 VORO	20	2315	2323	2317	N15	E17	.466	12273	22.2	8	-8		C	2317	.84	.92		62	EJ 6
753 ATHN	21	0755E	0800D	0755U	S06	E31	.512	12275	23.7	5D	-N	1	V		.50				DE 6
754 ATHN	21	0907E	0926D	0908	S05	E22	.374	12275	23.0	19D	-N	2	C		.33				DE 8
755 ATHN	21	0930E	0958	0934	S06	E23	.389	12275	23.1	28D	-N	2	C		.33				DE 7
758 MANI	22	0402U	0427U	0414	N04	E81	.989	12280	28.2	25D	-N	2		0414	.41	1.08			5
763 ARCE	22	0833E	0915D		N06	E78	.981	12280	28.2	42D	-N		C	0838	.28				10
765 KHAR	22	0920E	1017D		S01	E80	.985	12280	28.4	57D	1F		V	1005	1.86				D 9
767 CATA	22	1020	1050	1030	N14	W02	.360	12273	22.3	30	-N	1		1030	.58	.62		(200)	6
768 RAMY	22	1023	1353	1323	N09	E59	.874	12294	26.9	210	-N	3	V		.52				DE 9
GRP47769	22	1209	1220	1211	N17	W03	.409	12273	22.3	11	-F				.30				2 2 2 9
MEUD	22	1209	1220	1210	N18	W01	.423	12273	22.4	11	-F		C	1210	.31	.30			D
RAMY	22	1209	1219	1211	N15	W04	.380	12273	22.2	10	-F	3	C		.28				DE
770 RAMY	22	1335E	1355D		N05	E73	.960	12280	28.0	20D	-F	3	V						DE 11
GRP47771	22	1434	1448	1441	N05	E74	.965	12280	28.2	14	-F								2 2 0 8
RAMY	22	1433E	1450D		N05	E73	.960	12280	28.1	17D	-N	3	V						DE
HUAN	22	1434	1445	1441	N05	E75	.969	12280	28.2	11	-F	1	C	1441					
772 BOUL	22	1625E	1637D	1625	N17	W09	.432	12273	22.0	12D	-F	2	V	1625		.40			7
GRP47777	22	2303	2323	2308	N14	W10	.394	12273	22.2	20	-8				.78				2 2 2 5
PALE	22	2259	2333	2307	N15	W10	.409	12273	22.2	34	-8	2	V		.93				H
PALE	22	2259	2333	2300	N15	W10	.409	12273	22.2	34	-F	2	V		.21				H
MANI	22	2306	2312	2308	N13	W10	.380	12273	22.2	6	-N	1		2308	.62	.67			
GRP47779	22	2349	2358	2352	N07	E67	.929	12280	28.0	9	-F				.69				2 2 2 6
MITK	22	2349	2359	2354	N08	E68	.936	12280	28.1	10	-N		C	2354	.72				E
CRON	22	2349E	2356	2349E	N06	E66	.921	12280	27.9	7D	-F		V	2356	.65				
783 MANI	23	0142U	0151	0145	N16	W11	.429	12273	22.2	9D	-N	2		0145	.31	.34			5
785 MANI	23	0448U	0515	0450	N07	E65	.916	12280	28.1	27D	-N	2		0450	.83	1.68			5
786 MANI	23	0457	0556	0500	N02	E63	.895	12280	27.9	59	-F	2		0500	.31	.59			4
787 MANI	23	0457	0556	0548	N02	E63	.895	12280	27.9	59	-N	2		0548	.41	.79			6
GRP47789	23	0639	0701	0648	N05	E64	.906	12280	28.1	22	-N				.80				2 2 2 8
MANI	23	0634U	0657U	0648	N04	E65	.912	12280	28.1	23D	-N	2		0648	.93	1.86			
ATHN	23	0644	0701	0648	N06	E62	.893	12280	27.9	17	-N	3	C		.68				F
GRP47790	23	0746	0840	0826	N15	W16	.455	12273	22.1	54	-F				.31				2 2 1 9
ISTA	23	0746	0850		N15	W15	.446	12273	22.2	64	-F								D
MEUD	23	0825	0830	0826	N15	W16	.455	12273	22.2	5	-F		C	0826	.31	.30			DH
791 UPIC	23	0752E	0759		N13	E18	.451	12283	24.7	7D	-F		P	0752	.42				9
793 UPIC	23	0842	0851	0846	N05	E62	.891	12280	28.0	9	-F		P	0846	.21				9
794 UPIC	23	0923U	0938		N15	W18	.474	12273	22.0	15D	-F		P	0923	.21				10
800 HUAN	23	1446	1454	1449	N14	W20	.483	12273	22.1	8	-F	1	C	1449	.26	.32			D 7
802 MCMA	23	1540	1547	1542	N08	E58	.864	12280	28.0	7	-F		C	1542	.31	.60			D 8
804 MCMA	23	1635	1700	1638	N15	W22	.514	12273	22.0	25	-N		C	1638	.41	.50			EL 5

SOLAR FLARES
Unconfirmed
MARCH 1973

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
805 HUAN	23	1717E	1722D	1718	N17	W17	.489	12273	22.4	5D	-F	1	P	1718	.26	.30			D 6
GRP47813	23	2348	2354	2349	N15	W25	.546	12273	22.1	6	-F				.34				2 2 2 5
PALE	23	2346	2354	2348	N15	W24	.535	12273	22.2	8	-N	2	V		.28				F
MANI	23	2349	2351U	2350U	N15	W26	.557	12273	22.0	2D	-F	2		2350	.41	.49			
814 MANI	24	0851	0100	0853	N07	E54	.825	12280	28.1	9	-N	2		0853	.41	.70			5
815 MITK	24	0130	0209	0139	N14	E61	.899	12280	28.6	39	-F		C	0139	.93	2.00			E 5
822 TEHR	24	1805E	1820	1805U	N27	W15	.600	12286	23.3	15D	-N	1	V		.31				DE 7
823 TEHR	24	1847E	1850	1847U	N27	W15	.600	12286	23.3	3D	-N	1	V		.15				DE 6
824 UPIC	24	1852E	1110D		N07	E48	.765	12280	28.1	18D	-F		P	1852	.21				D 7
825 RAMY	24	1135E	1143D		N14	W32	.616	12273	22.1	8D	-F	3	V						DE 8
828 KIEV	24	1253	1310	1259	N15	W33	.634	12273	22.1	17	-N		C	1259	1.03	1.30		60	DI 8
829 MCMA	24	1313	1325D	1315	N13	W34	.632	12273	22.0	12D	-F		C	1315	.41	.60			EM 9
834 BOUL	24	2218	2232	2224	N17	W35	.670	12273	22.3	14	-F	3	V						3
836 PALE	25	0253E	0305	0254	N08	E26	.498	12294	27.1	12D	-N	2	C		.81				F 5
839 TEHR	25	0943E	0943D	0943U	N13	W43	.733	12273	22.2		-N	2	V		.41				DE 9
840 HUAN	25	1213	1253		N05	E41	.677	12280	28.6	40	-F	1	C	1230	.57	.75			5
848 PALE	25	1948	2006	1952	N13	W47	.774	12273	22.3	18	-F	3	V		.41				F 3
850 PALE	25	2109	2116	2111	N06	E29	.525	12280	28.1	7	-N	3	V		.15				4
853 VORO	26	0016	0032	0020	N12	W57	.864	12273	21.7	16	-N		C	0020	.28	.53		60	DL 6
856 CATA	25	1145	1150	1145	N16	W58	.881	12273	22.1	5	-F	3		1145	.29	.61		(140)	6
857 BOUL	26	1518	1526	1519	N14	W61	.899	12273	22.1	8	-F	3	V						3
858 PALE	26	1832E	1835D	1832U	N16	W62	.910	12273	22.1	3D	-F	2	C		.27				4
861 PALE	26	1939	1944	1940	S05	E90	1.000	12293	2.6	5	-N	2	V		.27				3
862 PALE	26	1939	1944	1940	N05	E90	1.000	12293	2.6	5	-N	2	V		.27				3
866 PALE	26	2358E	0000	2358U	N15	W51	.820	12273	23.2	2D	1B	2	V		1.44				F 5
868 TEHR	27	0922	0933	0925	N08	W03	.260	12294	27.2	11	-N	2	C		.46				F 8
875 PALE	27	2205E	2210D	2205	S08	E81	.985	12293	3.0	5D	-F	3	V		.46				DE 4
877 PALE	27	2328E	2334	2329U	S05	E72	.949	12293	2.4	6D	-N	3	V		.67				F 4
880 MANI	28	0725	0735	0730	S07	E69	.930	12293	2.5	10	-N	2		0730	.41	.86			6
888 PALE	29	1745E	1807D	1749	N13	E90	1.000	12298	5.5	22D	-N	2	C		.36				3
894 MANI	30	0330U	0330U	0330U	S03	E38	.616	12293	2.0		-N	2		0330	.52	.66			4
895 TEHR	30	0505E	0515	0505U	N12	E85	.998	12298	5.6	10D	-N	3	V		.21				DE 3
896 MANI	30	0543	0544U	0544U	S03	E37	.602	12293	2.0	1D	-F	2		0544	.31	.39			4
898 TEHR	30	0738E	0743	0738U	S07	E40	.639	12293	2.3	5D	-N	3	V		.15				DE 5
899 TEHR	30	0813E	0817	0813U	S05	E35	.571	12293	2.0	4D	-F	3	V		.33				F 7
900 MONT	30	0825	0830	0827	S02	E36	.590	12293	2.1	5	-F		C	0827	.10				8
903 CANR	30	1120	1132		N08	W28	.523	12280	28.4	12	-N		V	1122	.70	.80			7
904 CANR	30	1121	1129		S06	E42	.666	12293	2.6	8	-N		V	1123	.40	.60			7
906 CANR	30	1300	1325	1308	S03	E35	.574	12293	2.2	25	-F		V			.50			5
914 MANI	30	2355U	0005	2355U	S06	E26	.436	12293	1.9	10D	-F	2		2355	.52	.57			4
915 MANI	30	2355U	0000	2355U	N09	W29	.543	12280	28.8	5D	-F	2		2355	.52	.61			4

SOLAR FLARES
Unconfirmed
MARCH 1973

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS					REMARKS
	DATE MAR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HEMATH PLAGE REGION	CMP DAY	MIN.				TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
916 PALE	31	0833E	0838	0834U	N10	W35	.624	12280	28.4	5D	-N	2	V		.62				DE U 3
917 MANI	31	0110U	0117U	0110U	N09	W30	.555	12280	28.8	7D	-N	2		0110	.72	.86			4
918 CRON	31	0217	0226		S07	E29	.482	12293	2.3	9	-N		V		.50				3
920 CRON	31	0351E	0354		S06	E30	.497	12293	2.4	3D	-F		V		.80				3
GRP47924	31	0717	0729	0720	S06	E25	.420	12293	2.2	12	-N				.77				2 2 2 5
MANI	31	0717	0726	0720	S06	E24	.405	12293	2.1	9	-N	2		0720	.83	.90			
CAPS	31	0718E	0732D		S05	E25	.421	12293	2.2	14D	-N	2	V	0721	.70	.80		(189)	C
925 MANI	31	0738	0755	0741	N10	W32	.587	12280	28.9	17	-F	2		0741	.31	.39			5
930 BOUL	31	1545	1633	1552	N08	W34	.601	12280	29.1	48	-F	3	V						5
931 PALE	31	1648E	1705	1650U	N07	E63	.901	12298	5.4	17D	-N	2	C		.45				5
934 RAMY	31	1738	1803	1741	N08	W35	.613	12280	29.1	25	-F	2	C		.74				DE 5
940 MANI	31	2300U	2303	2300U	N09	W39	.668	12280	29.0	3D	-N	1		2300	.31	.42			4

"Remarks":

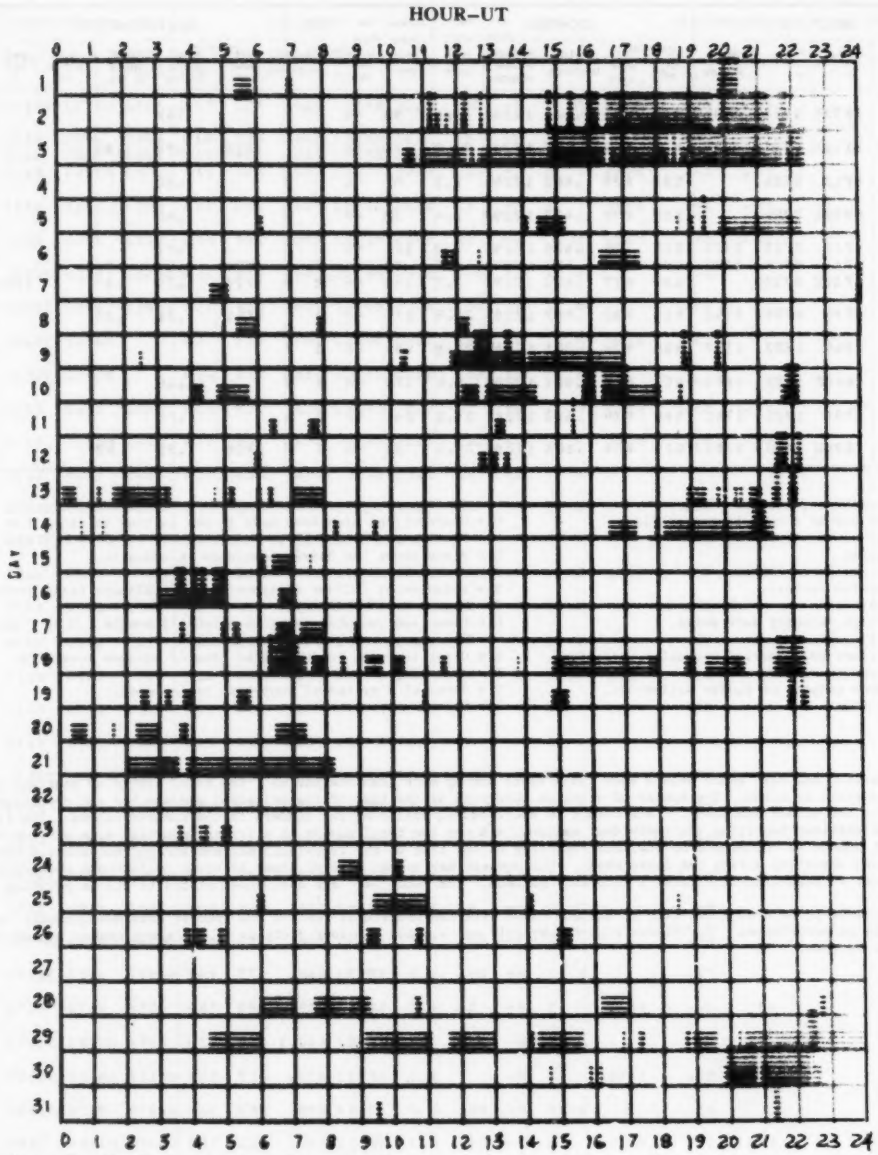
A = Eruptive prominence, base at >90°.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No spots visible in the neighborhood.
H = Flare with high velocity dark surge.
I = Very extensive active region.
J = Plage with flare shows marked intensity variations.
K = Several intensity maxima.
L = Filaments show effects of sudden activation.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H or K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line.
S = Brightening follows disappearance of filament (same position).
T = Region active all day.
U = Close and somewhat parallel bright filaments (|| or Y shape).
V = Occurrence of an explosive phase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα emission.
Y = Onset of a system of loop-type prominences.
Z = Major sunspot umbra covered by flare.

Note:
A line of explanation has been added before each flare event having more than one maxima. The total number of stations reporting some part of the event is given. The number of stations observing at the time of the principal maximum but not reporting the event is given in the second statement. Care should be exercised in utilizing the numbers in the remarks column. The first number is the number of stations reporting the individual maximum, and not the total number of stations reporting some part of the flare event. The last number is the number of stations reporting at the time of the individual maximum and not necessarily the total number of stations observing during the flare event. GRP numbers may appear several times in order to indicate secondary maxima. An asterisk beside an importance indicates a secondary maximum. The word "GRP" has also been omitted to aid in pointing to this condition.
When it is impossible to determine the time of Maximum Phase from the individual reports the time of Area Measurements is used. This time appears in parentheses. For Flares reported by only one station the last 3 digits of the group number appear to the left of the station code.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

MARCH 1973



Observatories included in total patrol:

Abastumani	Capri-F (German)	Gran Canaria	Kiev	Meudon	Tachkent
Arcetri	Capri-S (Swedish)	Herstmonceux	Kodaikanal	Mitaka	Tehran
Athenes	Carnarvon	Huancayo	Locarno	Monte Mario	Upice
Boulder	Catania	Istanboul	Manila	Palehua	Voroshilov
Bucharest	Culgoora	Kharkov	McMath-Hulbert	Ramey	Wendelstein
					Zürich

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
1	100	HIRA	45	0009.7	0011.7	8.5	60.0	15.0		
	100	HIRA	45	0029.2	0029.6	1	40.0	20.0		
	315	DWIN	44	0800 E		420 D		28.0		
	283	DWIN	44	0800 E	0945	480 D	130.0	25.0		
	260	ONDR	44	0830		440	230.0D			
	410	SGMR	44	1124 E	1142	216.9D	16.4			
	245	SGMR	44	1124 E	1315.8	664 D	42.8			
	9285	ARCE	21	0820.3	0837.8	61				
	3000	BERL	46	0820	0830.9	111	25.0	4.6		
	2830	ARCE	23	0821.5	0834	52				
	9500	BERL	21	0825.5	0831	80	18.0			
	4995	MANI	4	0827	0831	12.9	52.1	12.4		
	8800	ATHN	4	0828.9	0831.1	28.3	18.1	5.6		
	8800	MANI	4	0828.5	0831.1	6.7	23.5	9.0		
	4995	CANR	45	0828	0830.5	27.5	37.0	7.0		
	4995	ATHN	4	0828.9	0831	27.1	43.7	11.5		
	2695	ATHN	4	0828.8	0831.1	27.7	22.8	5.7		
	2695	MANI	4	0828.5	0831	10.7	21.6	8.2		
	1420	CANR	45	0828	0830.5	9.5	17.0	4.0		
	1415	ATHN	4	0828.9	0831.1	27.6	14.0	4.5		
	1415	MANI	4	0828.7	0831.1	10	12.4	3.1		
	10500	BERN	4	0829.6	0831	7	19.0			
	2695	CRON	45	0829	0830.5	8.5	21.0	4.0		
	1500	BERL	46	0829	0831	99	15.0	2.3		
	1420	ARCE	40	0829.8	0831.2	11				
	606	MANI	4	0829.6	0835.5	10.2	19.4	2.6		
	9285	ARCE	20	0830.4	0831.2	5.6				
	4995	CRON	45	0830	0831	8.5	37.0	9.0		
	2830	ARCE	3	0830.4	0831	1				
	930	BORD	45	0830	0835.5	8	31.0	4.0		
	808	ONDR	45	0830	0832	7.5	80.0			
	536	ONDR	45	0830	0832	7	80.0			
	260	ONDR	45	0830	0834.5	10	90.0			
	2695	CANR	45	0831	0832.5	10.5	12.0	3.0		
	1420	CRON	45	0831.5	0835.5	8.5	12.0	3.0		
	225	HARS	45	0831	0835.5	8	180.0	35.0		
	510	POTS	45	0832	0832.2	1	15.0	1.0		
	315	DWIN	45	0832	0834	24	60.0	25.0		
	237	TRST	41	0833.9	0834.6	2.8	420.0			
	113	POTS	45	0833.2	0834.7	7.7	800.0	35.0		
	30	UPIC	45	0833.5		5.5				
	23	POTS	45	0833.3	0834.2	5.7	40000.0	8000.0		
	315	DWIN	45	1112	1124	40	70.0	25.0		
	260	ONDR	45	1113	1121	28	230.0D			
	283	DWIN	45	1114	1120	46	160.0D			
	1420	CANR	45	1115	1119.5	39	471.0	80.0		
	9500	BERL	4	1116.5	1119.5	129	1200.0	470.0		
	8800	ATHN	47	1116.5	1120	42.5	1497.0	101.5		
	4995	CANR	47	1116	1112	47.5	847.0	158.0		
	4995	ATHN	47	1116.7	1120	33.6	689.0	93.6		
	3000	BERL	4	1116	1119.7	155	396.0	74.0		
	2830	ARCE	4	1116.4	1119.8	10.8				
	2695	ATHN	4	1116.2	1119.2	31.6	482.0	117.0		
	1500	BERL	4	1116	1120.3	33	1400.0	140.0		
	1420	ARCE	47	1116.4						OFF SCALE
	1415	ATHN	47	1116.4	1119.2	29.8	4331.0	62.4		
	930	BORD	47	1116	1120	32	4810.0D	190.0		
	808	ONDR	45	1116.5		34	695.0D			
	536	ONDR	45	1116	1120	33.5	375.0			
	510	POTS	45	1116	1119.5	32	175.0	15.0		
	234	POTS	45	1116	1120.5	164	350.0	5.0		
	113	POTS	45	1116	1119	140	200.0	5.0		
	10500	BERN	47	1117.5	1119.6	31	1405.0			
	9400	SLOU	4	1117.5	1119.5	15	1780.0			
	9400	HUAN	45	1117.7	1119.5	6.1	183.8	74.1		
	9285	ARCE	4	1117.7	1119.5	9.1				
	2695	CANR	47	1117.5	1127.5	22.5	6656.0	1004.0		
	408	TRST	27	1117	1120	30 D	100.0D			
	7000	SAOP	46	1118 U	1119.4	7 E	214.5			
	7000	SAOP	4	1118 U	1119.4	1 E	214.5	157.4		
	237	TRST	42	1118.5	1121.4	3.9	1400.0			
	30	UPIC	45	1118	1119	5				
	23	POTS	45	1118.5	1119.5	2	7000.0	1700.0		
	71000	SLOU	3	1119.5	1120	1	220.0			
	37000	SLOU	4	1119.5	1120	7	360.0			
	19000	SLOU	4	1119.5	1120	8	570.0			
	7000	SAOP	4	1119.7	1119.9	1.8	192.3	86.1		
	7000	SAOP	29	1125.7		31.1				
	9285	ARCE	29	1126.8		64.5				
	2830	ARCE	29	1127.2		65				
	225	HARS	3	1148	1149	2	105.0	20.0		
	2800	OTTA	20	1255	1335	90	3.6	2.0		
	245	BOUL	42	1345	2031	647 D			1	
	930	BORD	45	1357	1357.7	1	17.0	2.0		
	7000	SAOP	20	1421.4		5.9	3.1			
	7000	SAOP	22	1530.9		48.1	5.1			
	606	SGMR	1	1721.4	1721.5	.3	4.5	2.2		
	410	SGMR	6	1721.4	1721.5	.4	16.4	6.8		
	245	SGMR	6	1721.4	1721.5	.7	98.6	39.0		
	7000	SAOP	23	1757.6	1759.3	15.4	5.3			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	7000	SAOP	22	1757.6		15.4	5.3			
	7000	SAOP	4	1757.6	1759.3	1.7	5.3	3.2		
	9400	HUAN	20	1950.6	1956.4	18.1	9.2	4.1		
	2800	OTTA	20	2130	2140	20	1.4	0.7		
	2695	PENT	20	2225	2230	30	2.2	1.1		
2	200	GORK	44	0539		141		5.0		
	234	POTS	45	0605	0639	139	25.0	6.0		
	315	DWIN	44	0740 E		82		6.0		
	260	ONDR	45	0750	0750	57.5	60.0			
	4995	CANR	3	0825.5	0827	2	10.0	3.0		
	260	ONDR	45	1110	1130	3.5	30.0			
	30	UPIC	45	1129.5	1130	2.5				
	100	GORK	6	1130	1130.2	.8	40.0	20.0		
	7000	SAOP	20	1315.1		11.1	3.0			
	7000	SAOP	22	1429.8		50 E	5.3			
	2800	OTTA	20	1515	1520	15	1.0	0.5		
	18	MCMA	41	1526	1529	4			2	
	2800	OTTA	21	1545	1812	250	5.8	2.1		
	2700	PENN	20	1804.6	1827.4	26.3	10.0	3.8		
	7000	SAOP	22	1810		59 E	6.2			
	9400	HUAN	20	1814.6	1827	43.6	12.6	4.3		
	245	SGMR	43	1808.9	2038.6	261.1D	291.0			
	606	SGMR	43	1811	1841.3	259 D	24.6			
	410	SGMR	43	1812.8	1845.5	257.2D	46.4			
	2800	OTTA	1	1818	1818.8	2	2.2	1.0		
	2695	BOUL	3	1818.5	1819.5	1.5	4.0	1.0		
	1420	BOUL	3	1818.5	1819	1.5	2.0	1.0		
	4995	BOUL	3	1822.5	1827	6	8.0	3.0		
	2800	OTTA	45	1824	1827.2	9	3.6	1.3		
	2695	CANR	3	1824	1825.5	2	8.0	3.0		
	245	BOUL	42	1824	2039	283			1	
	2695	BOUL	45	1825	1828	4	7.0	2.0		
	1420	CANR	3	1825	1827	2	2.0	1.0		
	1420	BOUL	3	1826.5	1827.5	2	2.0	1.0		
	2700	PENN	8	1857.3	1857.3	.1	8.8			
3	4995	CRON	3	0203.5	0206	6.5	8.0	2.0		
	260	ONDR	8	0843.5	0843.5	.5	35.0			
	260	ONDR	45	0903.5	0909.5	26	35.0			
	260	ONDR	8	1035.5	1035.5	.5	35.0			
	260	ONDR	8	1128	1128	.5	25.0			
	2695	CANR	3	1343.5	1344.5	1.5	4.0	1.0		
	260	ONDR	8	1344	1345	2.5	80.0			
	237	TRST	41	1344.9	1345.1	.5	1300.0			
	234	POTS	45	1345	1345.1	.2	800.0	130.0		
	113	POTS	45	1345	1345.2	.6	5600.0	1800.0		
	30	UPIC		1345.3	1345.5	.3				
	23	POTS	45	1345.2	1345.3	.5	7000.0	2500.0		
	2800	OTTA	20	1610	1710	120	1.4	0.7		
	7000	SAOP	3	1731.4	1731.6	1.6	5.5	2.6		
	245	BOUL	41	1909	1945	51			1	
	2800	OTTA	1	2018.2	2019.5	1.8	2.2	1.1		
	2700	PENN	1	2018.7	2019.3	2	5.0	1.7		
	2700	PENN	8	2044.8	2044.9	.2	8.3			
	2700	PENN	8	2057	2057.1	.1	19.2			
	245	BOUL	41	2111	2119	9			1	
4	200	GORK	44	0506		54		5.0		
	260	ONDR	41	0813	0825.5	413	35.0			
	315	DWIN	44	0920 E		472 D	60.0	2.0		
	245	SGMR	44	1119 E	1525.5	533.1D	21.0			
	7000	SAOP	8	1657.6	1658.2	.8	2.5	1.5		
	18	MCMA	6	1741	1743	3			2	
	18	BOUL	6	1745	1747	3			2	
	18	MCMA	42	2114	2132	33			3	
5	4995	BOUL	3	0016	0017	2.5	5.0	2.0		
	283	DWIN	44	0740 E	0815	80	130.0	25.0		
	260	ONDR	45	0750	0839	75	40.0			
	315	DWIN	44	0800 E		105	60.0	15.0		
	30	UPIC	45	0840	0840.3	1.5				
	7000	SAOP	20	1527 U		44 E	7.3			
	2800	OTTA	1	1606.9	1607	1	.6	0.3		
	606	SGMR	40	1842.1	1846.2	4.1	3.0	1.0		
	245	SGMR	6	1842	1846.3	4.8	8.7	2.9		
	1415	SGMR	1	1903.2	1903.3	.3	.8	.4		
	606	SGMR	1	1903.7	1903.8	.3	1.2	.6		
	410	SGMR	6	1903.2	1903.6	.8	3.4	1.5		
	245	SGMR	6	1903.1	1903.5	.8	24.8	8.0		
	2695	PENT	21	2150	2250	160	5.8	2.9		
	2800	OTTA	22	2155	2202	15	3.2	1.6		
	245	BOUL	41	2250	2252	97			1	
6	4995	CRON	3	0431.5	0432	2	11.0	3.0		
	4995	MANI	4	0431.8	0432.6	4.4	10.8	2.9		
	3750	TYKW	3	0431.5	0432.5	4	16.0	4.0		
	2695	MANI	3	0431.8	0432.5	2.9	17.7	7.1		
	2695	CRON	3	0431	0432	3.5	15.0	5.0		
	2000	TYKW	1	0431.5	0432.5	4	5.0	2.0		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
6	1420	CRON	3	0431	0432	3	4.0	1.0		
	1415	MANI	1	0431.8	0432.5	2.9	5.2	2.6		
	9400	TYKW	1	0432	0432.6	3	5.0	2.0		
	1000	TYKW	1	0432	0432.5	1	1.0	0.5		
	200	HIRA	45	0432	0432.3	1	190.0	40.0		
	100	HIRA	45	0432.2	0432.2	.5	20.0	10.0		
	200	GORK	44	0606		78		5.0		
	260	ONDR	41	0740	0918	390	75.0			
	283	DWIN	44	0810 E	0927	470	160.0D	5.0		
	315	DWIN	44	1000 E		300	70.0	7.0		
	245	SGMR	43	1350.5	1523.6	533.5D	8.4			
	4995	CANR	45	0915.5	0916.5	9	65.0	16.0		
	2695	CANR	3	0915	0917	7.5	102.0	32.0		
	1415	MANI	4	0915.5	0918.9	12	29.1	12.6		
	283	DWIN	45	0915 E	0916	3	160.0D			
	9285	ARCE	21	0916.5	0924.6	6.2				
	3000	BERL	4	0916	0918.7	22	84.0	37.0		
	2695	ATHN	4	0916.8	0918.6	14.6	85.9	20.6		
	2695	CRON	8	0916.5	0918	7	72.0	29.0		
	1420	CRON	8	0916.5	0919	6.5	26.0	11.0		
	1415	ATHN	4	0916.8	0918.8	9	22.1	5.8		
	650	GORK	46	0916	0918.7	5	16.5			
	650	GORK		0916	0919.1		16.0			
	9500	BERL	4	0917.5	0918.7	21	40.0	12.0		
	8800	ATHN	4	0917.4	0918.6	15.5	57.0	15.4		
	8800	MANI	4	0917.2	0919.7	10.3	54.0	29.2		
	4995	CRON	45	0917	0918.5	7.5	67.0	24.0		
	4995	ATHN	4	0917.4	0918.6	18.2	83.5	20.9		
	4995	MANI	4	0917.2	0918.6	10.3	85.0	28.1		
	2950	GORK	3	0917.4	0919.1	28	104.0			
	2830	ARCE	3	0917.4	0918.5	9				
	2695	MANI	4	0917.2	0918.8	10.3	62.0	20.4		
	1500	BERL	4	0917	0918.6	8	25.0	10.0		
	1420	ARCE	4	0917.3	0919	6.5				
	930	BORD	45	0917	0918.5	4	9.0	3.0		
	808	ONDR	45	0917	0918	3.5	70.0			
	606	MANI	4	0917.1	0918.1U	3.7D	16.5U	5.4D		SUNSET
	536	ONDR	45	0917	0918	4	55.0			
	510	POTS	45	0917	0920	3.5U	28.0	3.0		
	260	ONDR	45	0917.5	0918	3.5	75.0			
	10500	BERN	3	0918.6	0919.5	12	34.0			
	9400	SLOU	45	0918	0919	6	42.0			
	9285	ARCE	4	0918	0918.7	68				
	9100	GORK	20	0918	0919.1	22.2	46.0	6.3		
	1420	CANR	3	0918	0919.5	5	15.0	6.0		
	950	GORK	45	0918	0919.2	3.2	10.0	6.0		
	950	GORK		0918	0921		6.0			
	100	GORK	41	0918.4	0919.3	2.3	20.0			
	100	GORK		0918.4	0920		70.0			
	30	UPIC	45	0918	0918.5	5				
	200	GORK	6	0919.6	0920.4	1.3	50.0	25.0		
	2950	GORK	29	0923.1	0923.1	22.2	9.3			
	100	GORK	6	0933.6	0933.9	.5	75.0	30.0		
	9285	ARCE	20	1108.4	1149	217				
	225	HARS	3	1148.5	1149.5	2.5	150.0D	90.0		
	2800	OTTA	21	1240	1250	160	2.2	1.1		
	2830	ARCE	22	1318.2	1334.7	19				
	606	SGMR	40	1324	1334.6	11.2	10.7	3.0		
	245	SGMR	6	1324	1334.6	21.1	7.4	2.0		
	410	SGMR	6	1327.5	1336.9	17.5	2.8	1.0		
	1415	SGMR	41	1329.1	1334.7	7.3	2.5	.5		
	2800	OTTA	21	1330	1335	45	2.2	1.1		
	1420	ARCE	22	1330.5	1334.7	7.2				
	9285	ARCE		1332.4	1348.2	73				
	2695	CANR	45	1332.5	1333.5	2	5.0	2.0		
	1420	CANR	45	1332.5	1334.5	3	3.0	1.0		
	2695	SGMR	1	1333.2	1334.7	6	3.5	1.5		
	2800	OTTA	1	1334	1334.8	1	3.0	1.5		
	2800	OTTA	24	1455		60	3.6			
	18	MCMA	6	1643	1645	4			1	
	18	MCMA	6	1716	1717	3			2	
	7000	SAOP	22	1743.5		12.7	4.0			
	18	MCMA	6	1748	1750	6			3	
	18	MCMA	6	1812	1813	2			3	
	2800	OTTA	21	1940	2020	80	3.2	1.6		
	9400	HUAN	21	1945.8	1952	68.8	20.6	7.6		
	7000	SAOP	23	1949.5	1951.6	28 E	10.8			
	7000	SAOP	20	1949.5		28 E	10.8			
	8800	SGMR	3	1950 U	1952 U	10 U	21.2U	8.8U		
	4995	SGMR	3	1950 U	1952 U	10 U	24.3U	9.8U		
	2695	SGMR	1	1950 U	1952 U	10 U	9.6U	4.2U		
	10700	PENN	1	1951.8	1952.4	8.3	6.9	1.3		
	7000	SAOP	4	1951.5	1951.6	1.6	6.7	3.2		
	4995	BOUL	8	1951	1952	2	15.0	5.0		
	2800	OTTA	1	1951.8	1952.1	2	6.4	3.2		
	2695	BOUL	3	1951	1952.5	4	11.0	4.0		
	1420	BOUL	45	1951	1953	2.5	2.0	1.0		
	410	SGMR	6	1951.4	1951.9	2.7	161.0	64.0		
	2800	OTTA	26	2100		80	2.5			
7	2695	ATHN	1	0732.5	0736.9	9.2	7.6	3.0		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
7	2830	ARCE	21	0733.3	0736.2	45				
	9285	ARCE	20	0734.2	0737.8	26.5				
	2695	CRON	3	0734	0736.5	4	7.0	2.0		
	1415	ATHN	4	0734.7	0736.5	5.7	14.0	4.4		
	1415	MANI	2	0734.9	0736.7	3.9	8.8	2.9		
	606	MANI	2	0734.9	0736.4	3.9	3.6	1.0		
	3000	BERL	2	0735 U	0737	7.5U	3.3	1.4		
	1500	BERL	4	0735 U	0736.7	6 U	6.4	1.9		
	1420	CRON	8	0735	0736.5	5	9.0	3.0		
	1420	ARCE	3	0735.1	0736.9	7.2				
	950	GORK	3	0735	0736.8	4.3	3.8	1.9		
	650	GORK	1	0735.4	0736.6	4.3	3.3	1.6		
	8800	ATHN	1	0736.2	0737.2	3.5	1.5	.8		
	2950	GORK	1	0736.5	0737.2	1.1	2.9			
	2830	ARCE	1	0736.6	0737	.7				
	2800	OTTA	20	1455	1553	95	2.2	1.1		
	18	MCMA	6	1608	1611	3			3	
	245	BOUL	42	2242	0022 D	111 D			1	
	4995	BOUL	8	2331.5	2332	1.5	11.0	4.0		
	4995	MANI	3	2331.5	2332.4	3.1	15.3	4.7		
	2695	MANI	1	2331.5	2332.5	3.1	7.2	2.4		
	2695	PENT	1	2331.8	2332.4	2	4.6	2.3		
	9400	TYKW	1	2332	2332.4	1	2.0	1.0		
	3750	TYKW	3	2332	2332.4	2	14.0	3.0		
	2695	BOUL	8	2332	2333	2	7.0	3.0		
	2000	TYKW	1	2332	2332.5	2	3.0	1.0		
	1000	TYKW	1	2332	2332.5	1	3.0	1.0		
8	260	ONDR	45	0808.5	0842	68	45.0			
	315	DWIN	44	0810		72	70.0	10.0		
	283	DWIN	45	0810	0840	60		30.0		
	930	BORD	41	0824	0825.6	3	42.0	2.0		
	260	ONDR	45	1020	1020.3	15	35.0			
	2800	OTTA	20	1250	1320	120	2.0	1.0		
	260	ONDR	8	1342	1342	.5	25.0			
	2800	OTTA	20	1505	1620	265	2.2	1.1		
	18	MCMA	6	2051	2053	3			2	
	2695	PENT	20	2150	2300	175	2.0	1.0		
	18	BOUL	6	2304	2305	2			1	
	4995	CRON	8	2331.5	2332	1.5	9.0	3.0		
9	3750	TYKW	1	0307.6	0308	1	2.0	1.0		
	9400	TYKW	20	0427	0433	60	4.0	2.0		
	4995	MANI	1	0429	0430	2	3.8	1.3		
	3750	TYKW	1	0429	0430	2	4.0	2.0		
	2695	MANI	1	0429	0430.1	2	2.4	1.2		
	3750	TYKW	29	0431		50	2.0	1.0		
	315	DWIN	44	0730 E		510 D	70.0	15.0		
	283	DWIN	44	0730 E		510 D		40.0		
	260	ONDR	41	0855	1024	375	30.0			
	245	SGMR	44	1111 E	2202.5	687 D	540.0			
	200	GORK	44	1200		60		5.0		
	4995	CRON	3	0804.5	0807	4.5	5.0	2.0		
	930	BORD	45	0805	0805.5	1	10.0	2.0		
	7000	SAOP	41	1130.3		78.5	3.1			
	7000	SAOP	22	1130.3		9.7	3.1			
	7000	SAOP	22	1140		11.7	3.1			
	7000	SAOP	22	1151.7		8.3	2.1			
	7000	SAOP	22	1200		9.7	3.1			
	7000	SAOP	22	1209.7		9.7	2.1			
	7000	SAOP	22	1219.4		11.1	2.1			
	7000	SAOP	22	1230.5		10.6	2.1			
	7000	SAOP	22	1241.1		7.8	2.1			
	245	BOUL	42	1342	1351	42			1	
	2700	PENN	20	1513.4	1717.5	216	9.1	5.2		
	2800	OTTA	24	1515		30	2.7			
	2800	OTTA	20	1610	1740	145	3.0	1.5		
	7000	SAOP	22	1933.4		16.2	2.9			
	9400	HUAN	20	2010.5	2057.9	86.4	10.9	5.5		
	18	BOUL	6	2233	2236	5			2	
	18	BOUL	6	2238	2245	7			3	
	18	BOUL	6	2250	2257	9			3	
	18	BOUL	6	2302	2304	3			1	
	245	BOUL	42	2312	2350	40			1	
10	30	UPIC	45	0655	0657	4				
	200	GORK	44	0700		300 D		5.0		
	260	ONDR	44	0730		450	50.0D			
	315	DWIN	44	0750 E		570 D	70.0D	12.0		
	283	DWIN	44	0800 E		540 D	100.0	30.0		
	408	TRST	5	1018.5	1018.5	.1	19.0	6.0		
	245	SGMR	44	1109 E	1705.5	691 D	113.0			3
	245	BOUL	42	1702	1924	199			1	
	408	TRST	42	1114.7	1118.7	5	63.0			
	3000	BERL	1	1117	1117.5	2	1.9			
	1500	BERL	1	1117.2	1117.7	1.8	2.0			
	950	GORK	1	1117.7	1117.8	.4	1.8	0.9		
	650	GORK	41	1117.4	1117.7	1.8	3.6			
	650	GORK		1117.4	1118.7		5.3			
	536	ONDR	45	1117	1117.5	3	70.0			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
10	200	GORK	6	1139.8	1140.5	1.3	120.0	20.0		
	30	UPIC	45	1300.5	1301.5	2				
	245	BOUL	41	1353	1356	10			1	
	18	MCMA	6	1353	1355	3			2	
	113	POTS	40	1358.4	1359.1	1.1	550.0	30.0		
	30	UPIC	45	1358	1359	4.5				
	23	POTS	45	1358.4	1358.7	1.5	10000.0	2000.0		
	18	MCMA	6	1359	1400	2				
	536	ONDR	8	1400.5	1400.5	.5	55.0		2	
	2800	OTTA	21	1422	1705	405	4.6	2.3		
	245	BOUL	42	1444	1512	45			1	
	225	HARS	45	1505	1505.5	1.5	110.0	30.0		
	2800	OTTA	20	1540	1543	12	1.4	0.7		
	2695	BOUL	8	1743.5	1744	1	6.0	2.0		
	2800	OTTA	1	1923.5	1924	2	2.4	1.2		
	2700	PENN	1	1923.3	1924	2.2	5.3	1.3		
	2695	BOUL	3	1923.5	1924.5	1.5	4.0	1.0		
	2695	BOUL	8	2135	2135.5	1.5	12.0	5.0		
	18	MCMA	6	2135	2137	3			2	
	2700	PENN	3	2137.5	2138.1	1.3	21.3	4.4		
	960	PENN	1	2137.9	2138.2	.9	1.3	0.8		
	4995	BOUL	8	2139	2139.5	1.5	14.0	6.0		
	2800	OTTA	3	2139.5	2140	1.5	11.4	3.0		
	1420	BOUL	8	2139.5	2140	1	2.0	1.0		
	200	HIRA	45	2139.5	2140	1.5	210.0	60.0		
	2695	PENT	21	2140	2310	200 D	4.0			
	245	SGMR	6	2144.2	2145.3	5.9	229.0	22.0		
	200	HIRA	45	2145	2145.2	5.5	790.0	50.0		
	100	HIRA	45	2145.2	2145.4	1	80.0	30.0		
	100	HIRA	45	2147	2147.2	.8	50.0	15.0		
	2695	PENT	22	2210	2217	25	2.2	1.1		
	1420	BOUL	3	2217.5	2219	3	3.0	1.0		
	410	SGMR	6	2217.3	2220.8	11.8	130.0	12.0		
	245	SGMR	48	2217.5	2223.6	12.1	990.0	100.0		
	606	SGMR	41	2218.6	2220.8	11.8	96.0	10.0		
	500	HIRA	45	2220.5	2221	1.5	150.0	20.0		
	200	HIRA	45	2220	2220.8	2	150.0	60.0		
	100	HIRA	45	2220.8	2220.9	.5	120.0	30.0		
	1420	BOUL	3	2223.5	2224	1	1.0			
	200	HIRA	45	2223	2223.8	1	1000.0	200.0		
	100	HIRA	45	2223.5	2223.8	.6	75.0	20.0		
	200	HIRA	45	2225.5	2225.8	4	110.0	30.0		
	100	HIRA	45	2226.9	2227	1	65.0	15.0		
	245	BOUL	42	2232	2250	30			1	
	100	HIRA	5	2236.5	2236.6	.5	80.0	40.0		
	245	BOUL	42	2328	0028	65			1	
11	100	HIRA	5	0221.9	0222.2	.8	70.0	20.0		
	100	HIRA	45	0257	0257.4	1	75.0	15.0		
	200	HIRA	45	0313	0314.2	1.5	230.0	35.0		
	100	HIRA	45	0313.2	0313.2	1	100.0	30.0		
	100	HIRA	45	0314.2	0314.4	.6	110.0	40.0		
	200	GORK	44	0503		429		5.0		
	260	ONDR	44	0720	1127	460	230.0			
	606	SGMR	44	1106 E	1132.8	195.8D	12.0			
	410	SGMR	44	1106 E	1146.1	259.5D	22.4			
	245	SGMR	44	1106 E	1159	695 D	228.0			
	200	GORK	41	0546.1	0546.5	3.8	100.0			
	200	GORK		0546.1	0549.5		55.0			
	950	GORK	1	0623	0623.3	.5	3.0	1.5		
	200	GORK	6	0649.7	0650	.7	120.0	60.0		
	100	HIRA	45	0650	0650.2	.6	70.0	20.0		
	200	GORK	41	0659.7	0700.5	3.4	120.0			
	200	GORK		0659.7	0702.8		120.0D			
	100	GORK	48	0659.7	0700.4U	3.7	100.0D			
	100	GORK		0659.7	0703 U		100.0D			
	30	UPIC	45	0659	0701	3				
	113	POTS	40	0700	0702.9	2	1400.0	25.0		
	23	POTS	45	0700	0701.1	5.2	100000.0	1000.0		
	650	GORK	1	0701.9	0702	.3	3.6			
	234	POTS	45	0701.5	0702	1.5U	200.0	15.0		
	200	HIRA	45	0701	0702.6	2	170.0	50.0		
	100	HIRA	45	0701.5	0703	2	110.0	15.0		
	950	GORK	1	0702	0702.1	.2	2.8	1.4		
	200	GORK	6	0721	0721.4	1.2	130.0D			
	9285	ARCE	23	0740.6	0908.8	123				
	2830	ARCE	21	0744.8	0907.4	200				
	2695	CRON	8	0755.5	0756.5	2	9.0	3.0		
	2695	CANR	8	0755	0755.5	1	9.0	3.0		
	1420	ARCE	2	0755.8	0757.4	2.6				
	9500	BERL	1	0756.5	0757.8	3.3	6.7			
	9285	ARCE	2	0756.4	0757.5	3.6				
	8800	ATHN	1	0756.2	0757.3	2.6	4.7	1.6		
	4995	CRON	3	0756.5	0757.5	1.5	7.0	2.0		
	4995	ATHN	1	0756	0757.1	2.2	4.8	1.2		
	2830	ARCE	1	0756.7	0757.4	1				
	2695	ATHN	1	0756.1	0757.2	2.7	7.7	2.6		
	1500	BERL	2	0756.5	0758	3.2	5.4	1.9		
	1420	CANR	45	0756.5	0757	1.5	5.0	2.0		
	1420	CRON	8	0756.5	0757.5	2.5	5.0	1.0		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
11	1415 ATHN	1	0756.2	0757.2	2	4.3	1.4		
	808 ONDR	45	0756	0757	3	85.0			
	3000 BERL	3	0757 U	0757.5	2.5U	8.3			
	536 ONDR	45	0757.5	0757.5	2.5	150.0			
	500 HIRA	45	0757.3	0757.4	.5	160.0	60.0		
	1420 ARCE	29	0758.4		27				
	237 TRST	41	0857.2	0858.8	2	260.0			
	200 GORK	41	0857.2	0857.5U	3.7	160.0D			
	200 GORK		0857.2	0858.7		100.0D			
	200 GORK		0857.2	0900.7		100.0			
	113 POTS	41	0857.4	0901.8	4.7	700.0U	5.0		
	100 GORK	41	0857.2	0857.5	2.2	90.0			
	100 GORK		0857.2	0858.8		90.0D			
	950 GORK	1	0902.5	0902.7	.5	1.3	0.6		
	650 GORK	1	0905.5	0905.7	.5	1.9			
	237 TRST	45	0905.4	0905.5	.8	3800.0	560.0		
	200 GORK	41	0905.4	0905.7U	2.6	160.0D			
	200 GORK		0905.4	0907.2		160.0			
	100 GORK	6	0905.5	0905.6U	.6	90.0D			
	237 TRST	41	0914.4	0914.7	.4	1500.0			
	234 POTS	8	0914.7	0914.7	.1	600.0	200.0		
	200 GORK	6	0914.7	0914.8	.2	160.0	80.0		
	237 TRST	42	0929.9	0932.6	3.4	1000.0			
	950 GORK	1	0932.3	0932.6	.6	5.0	1.4		
	930 BORD	45	0932	0932.4	1	9.0	2.0		
	650 GORK	4	0932.4	0932.6	.8	7.4			
	536 ONDR	45	0932.5	0932.5	2	70.0			
	408 TRST	41	0932.4	0932.5	.4	64.0			
	234 POTS	45	0932.5	0932.6	.1	300.0	75.0		
	200 GORK	6	0932.4	0932.5U	.6	170.0D			
	113 POTS	45	0932.4	0932.4	.5	600.0	100.0		
	100 GORK	6	0932.4	0932.6U	.6	90.0D			
	100 GORK	6	0941.6	0942.2	.9	90.0	20.0		
	30 UPIC	45	0942	0943	2				
	30 UPIC	5	1018.5	1019	1				
	315 DWIN	45	1033	1034	4	25.0	5.0		
	950 GORK	1	1035.6	1035.7	.5	2.8	1.4		
	650 GORK	1	1035.5	1035.7	.6	4.1			
	237 TRST	45	1035.5	1035.7	.5	1900.0	580.0		
	234 POTS	45	1035.6	1035.7	.3	700.0	50.0		
	100 GORK	42	1035.4	1035.6	96	80.0D			
	100 GORK		1035.4	1058.8		90.0D			
	100 GORK		1035.4	1201.3		700.0			
	100 GORK		1035.4	1210		450.0			
	408 TRST	41	1041.2	1041.4	.3	17.0			
	30 UPIC	45	1057	1059	6				
	408 TRST	42	1058.7	1058.8	2.8	17.0			
	237 TRST	42	1058.3	1058.9	3.5	51.0U			
	200 GORK	3	1058.4	1059.9	3.1	70.0			
	200 GORK		1058.4	1101.1		90.0			
	113 POTS	41	1058.4	1058.7	3	200.0	5.0		
	1420 ARCE	23	1108.8	1200.2	63				
	237 TRST	42	1116.4	1116.6	3.6	73.0U			
	200 GORK	6	1116.4	1116.5	.5	170.0	80.0		
	113 POTS	41	1116.5	1116.5	2.8	150.0	2.0		
	30 UPIC	45	1116	1120	4.5				
	9285 ARCE	21	1117.5	1130.7	47.5				
	650 GORK	23	1120.4	1134.3	44.7	6.3			
	2830 ARCE	23	1121.4	1200	50.5				
	536 ONDR	45	1124	1127	4.5	125.0			
	4995 CANR	8	1125	1125.5	2.5	42.0	16.0		
	2695 CANR	8	1125	1125.5	2.5	56.0	21.0		
	315 DWIN	45	1125	1126	77	70.0	35.0		
	283 DWIN	45	1125	1126	75	160.0	45.0		
	4995 ATHN	3	1126.9	1127.3	3 U	44.8	15.4		
	3000 BERL	3	1126.7	1127.5	4.8	46.0	18.0		
	1500 BERL	3	1126.6	1127.5	24	231.0	39.0		
	1415 ATHN	3	1126.9	1127.3	8.6	157.0	36.7		
	950 GORK	3	1126.9	1127.4	2.2	60.0D			
	408 TRST	42	1126.2	1127.3	11	95.0D			
	225 HARS	45	1126.5	1127	1.5	125.0	35.0		
	23 POTS	45	1126.9	1127.4	2.8	140000.0	7000.0		
	15400 SGMR	4	1127.1	1127.3	.4	25.6	6.4		
	9500 BERL	3	1127	1127.4	4	51.0	14.0		
	9400 SLOU	3	1127	1127.5	1	90.0			
	9285 ARCE	3	1127.2	1127.4	2.5				
	9100 GORK	3	1127.2	1127.3	1.5	64.0	10.0		
	8800 ATHN	3	1127	1127.3	3.6	47.6	14.8		
	8800 SGMR	4	1127.2	1127.3	2.1	49.0	12.3		
	4995 SGMR	4	1127.2	1127.3	2	32.0	8.0		
	2950 GORK	3	1127.1	1127.6	3.7	58.0			
	2830 ARCE	3	1127.1	1127.4	3.4				
	2695 ATHN	3	1127	1127.4	4.2	47.0	15.2		
	2695 SGMR	4	1127.2	1127.4	2.1	53.6	13.4		
	1420 CANR	8	1127	1129	7	161.0	62.0		
	1420 ARCE	3	1127.2	1127.4	4.9				
	1415 SGMR	4	1127.3	1127.5	5.2	218.0	54.5		
	950 GORK	29	1127.7	1127.7	35.3	14.0	3.0		
	930 BORD	45	1127	1127.4	19	305.0	6.0		
	808 ONDR	45	1127	1127	13	260.0			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
11	650	GORK	45	1127	1127.3	10.7	114.0			
	650	GORK		1127	1129.5		21.0			
	606	SGMR	4	1127.3	1127.5	4.1	90.7	22.7		
	510	POTS	45	1127	1127.1	8	150.0	10.0		
	410	SGMR	6	1127.1	1127.3	.6	92.4	23.1		
	245	SGMR	48	1127.1	1127.3	.9	1190.0	298.0		
	237	TRST	45	1127.1	1127.3	.8	15500.0D			
	234	POTS	45	1127.2	1127.3	.4	100000.0D	2000.0D		
	200	GORK	6	1127	1127.3	.8	170.0D			
	113	POTS	45	1127.2	1127.3	.9	40000.0	1000.0		
	30	UPIC	45	1127.5		3.5				
	1420	ARCE	29	1132.1		8.7				
	30	UPIC	5	1144.5	1145.5	2.5				
	536	ONDR	3	1145.5	1145.5	2	80.0			
	408	TRST	42	1145.1	1146.2	1.4	71.0			
	23	POTS	8	1145.3	1145.4	.6	8000.0	2500.0		
	30	UPIC	45	1153		19				
	2695	CANR	45	1156.5	1157.5	2.5	7.0	2.0		
	2695	SGMR	45	1158.9	1159.7	4	6.5	2.0		
	2695	SGMR	45		1201.7		5.9			
	410	SGMR	6	1158.8	1159.9	1.7	21.3	5.0		
	245	SGMR	6	1158.8	1159	3.2	220.0	65.0		
	237	TRST	41	1158.9	1159	1.1D	960.0			
	200	GORK	41	1158.6	1159.6U	3.5	180.0D			
	200	GORK		1158.6	1201.4		2500.0			
	4995	SGMR	45	1159.2	1159.7	3.6	4.0	1.5		
	4995	SGMR	45		1201.7		4.4			
	3000	BERL	46	1159.5	1201.5	2.5	7.7			
	2950	GORK	41	1159.1	1200	4	10.3			
	2950	GORK		1159.1	1201.7		9.0			
	2695	ATHN	2	1159.2	1201.8	5	3.8	1.3		
	1500	BERL	46	1159.5	1201.5	3.3	12.0	2.3		
	1415	SGMR	4	1159	1201.7	4.7	24.0	8.0		
	1415	ATHN	3	1159	1201.5	8.8	19.0	3.0		
	606	SGMR	2	1159	1200	6.9	3.8	1.0		
	408	TRST	41	1159.3	1200	1	40.0			
	234	POTS	45	1159	1159	1	350.0	6.0		
	113	POTS	41	1159.2	1201.3	11	6000.0	300.0		
	23	POTS	41	1159.3	1200.2	11	150000.0	7000.0		
	9500	BERL	20	1200	1201.5	6	4.0			
	1420	CANR	45	1200	1202.5	3.5	15.0	5.0		
	1420	ARCE	8	1201.5	1201.7	1				
	950	GORK	1	1201.5	1201.7	.3	6.6	3.3		
	930	BORD	45	1201	1201.5	1	8.0	2.0		
	315	DWIN	29	1240		265 D		10.0		
	283	DWIN	29	1240		200 D		22.0		
	245	BOUL	42	1327	1341	43			1	
	2800	OTTA	24	1415		12	2.4			
	245	BOUL	41	1437	1442	14			1	
	113	POTS	45	1440.1	1440.2	.3	200.0	10.0		
	2695	CANR	8	1443.5	1444.5	1.5	20.0	7.0		
	9400	HUAN	4	1444.6	1445.4	4.5	16.9	6.2		
	4995	CANR	3	1444	1444.5	1	12.0	3.0		
	4995	ATHN	3	1444.9	1446.1	5 U	10.2	3.8		
	2695	ATHN	3	1444.9	1446.1	5.7	15.2	5.1		
	1420	CANR	8	1444.5	1445.5	4	28.0	10.0		
	10700	PENN	1	1445	1446.1	2.3	9.5	4.1		
	9400	SLOU	3	1445.5	1146.5	2	24.0			
	9285	ARCE	3	1445	1446	2.2				
	8800	ATHN	3	1445	1446.1	5.6	16.4	4.9		
	8800	SGMR	3	1445.3	1446	3.2	16.3	4.0		
	4995	BOUL	3	1445	1446	3	11.0	3.0		
	4995	SGMR	3	1445.4	1446.1	3.8	11.1	3.0		
	2830	ARCE	4	1445.1	1446	2				
	2800	OTTA	3	1445	1446	2	17.8	8.8		
	2700	PENN	45	1445.1	1446	1.6	29.3	11.6		
	2695	SGMR	3	1445.2	1446	5.4	16.8	4.1		
	1420	BOUL	8	1445	1446	2	28.0	9.0		
	1420	ARCE	4	1445.4	1446.1	3				
	1415	SGMR	46	1445.5	1445.7	5	29.3	8.0		
	1415	SGMR	46		1446		31.5			
	1415	ATHN	4	1445.1	1445.9	5.4	30.5	8.0		
	960	PENN	45	1445.2	1446	2.2	24.8	3.9		
	930	BORD	45	1445	1446	2	30.0	3.0		
	808	ONDR	45	1445	1445.5	3.5	145.0			
	606	SGMR	46	1445	1445.3	3.9	158.0	11.0		
	606	SGMR	46		1446.1		490.0			
	536	ONDR	45	1445	1445.5	3	370.0			
	410	SGMR	6	1445.4	1445.8	1.1	74.1	10.0		
	2700	PENN	29	1446.7	1446.7	31.1	6.0	3.0		
	2695	BOUL	8	1446	1447	4.5	20.0	7.0		
	9285	ARCE	29	1447.2		7.6				
	2800	OTTA	29	1447		13	2.4	0.8		
	245	BOUL	41	1519	1520	12			2	
	18	MCMA	41	1535	1538	4			2	
	245	BOUL	42	1603	1720	101			1	
	245	BOUL	41	1808	1815	12			1	
	606	SGMR	3	1931.8	1932.3	.8	17.3	4.0		
	410	SGMR	6	1931.6	1932.3	1.1	20.3	5.0		
	245	BOUL	42	1931	1933	58			1	

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
11	245 SGMR	6	1931.5	1932.3	1.5	238.0	60.0		
	18 MCMA	41	1932	1935	5			3	
	18 BOUL	6	1932	1936	6			3	
	18 MCMA	6	2047	2048	2			1	
	245 BOUL	42	2105	2115	67			1	
	100 HIRA	45	2113.4	2113.7	1	80.0	15.0		
	18 MCMA	6	2133	2135	3			1	
	245 BOUL	41	2247	2249	18			2	
	2695 PENT	24	2250		40	3.0			
12	1420 CRON	3	0203	0204	1.5	3.0	1.0		
	200 HIRA	45	0204	0204.1	1.5	540.0	50.0		
	100 HIRA	45	0204.2	0204.2	1.5	120.0	20.0		
	2695 MANI	1	0222.8	0223.2	1.1	5.3	2.1		
	2695 CRON	3	0222.5	0223.5	1.5	5.0	2.0		
	1415 MANI	1	0222.7	0223	1.6	7.2	2.4		
	606 MANI	1	0222.5	0223.3	1.3	6.6	2.6		
	1420 CRON	8	0223	0223.5	1.5	10.0	4.0		
	100 HIRA	45	0418.2	0418.3	.5	65.0	20.0		
	100 HIRA	45	0418.2	0421.2	6.5	40.0	10.0		
	200 HIRA	45	0419.5	0421	4	15.0	5.0		
	200 GORK	44	0500 E		480 D		5.0		
	100 GORK	44	0500 E		120		5.0		
	260 ONDR	44	0700	1144	490	230.0D			
	100 GORK	44	1100		120		5.0		
	245 SGMR	44	1105 E	1515.2	697 D	46.8			
	245 BOUL	42	1328 E	1810	368 D			2	
	100 GORK	41	0510.6	0511.4	4.6	30.0D			
	100 GORK		0510.6	0515		600.0			
	1415 MANI	1	0511.9	0513.2	1.7	4.0	.8		
	606 MANI	4	0511.9	0512.9	1.7	44.8	7.9		
	200 HIRA	45	0511.5	0513	6	160.0	15.0		
	200 GORK	41	0511.9	0514.4	4	100.0			
	200 GORK		0511.9	0515.4		100.0			
	100 HIRA	45	0511.5	0513.2	2	130.0	40.0		
	500 HIRA	45	0512.7	0513	1	110.0	30.0		
	950 GORK	3	0513	0513.2	.6	16.0	8.0		
	650 GORK	4	0513.4	0514.2	1.4	31.0			
	100 HIRA	45	0514.8	0515.2	.7	80.0	25.0		
	100 GORK	41	0707.2	0707.8	2.4	100.0			
	100 GORK		0707.2	0709.5		100.0			
	100 GORK	6	0714.8	0715.1	.7	100.0D			
	113 POTS	45	0718.6	0718.6	.5	200.0	30.0		
	23 POTS	45	0718.6	0718.9	.7	3000.0	600.0		
	650 GORK	2	0736	0736.3	.9	4.6	1.6		
	237 TRST	41	0738.9	0739	.4	780.0			
	930 BORD	45	0739	0739	1	17.0	1.0		
	200 GORK	6	0739.8	0739.9	.5	95.0	45.0		
	113 POTS	41	0749.1	0749.2	7.1	150.0	1.0		
	100 GORK	6	0749.4	0749.5	.4	100.0D			
	30 UPIC	45	0749.5	0756	7.3				
	23 POTS	41	0749.1	0749.2	7.5	25000.0	600.0		
	100 GORK	6	0756.6	0756.7	.3	100.0	50.0		
	30 UPIC	45	0812.5	0813	2.5				
	113 POTS	40	0813.3	0813.6	2.4	350.0	17.0		
	100 HIRA	45	0813.2	0813.6	1	130.0	40.0		
	100 GORK	41	0813.5	0813.9U	2.8	100.0D			
	100 GORK		0813.5	0816.1		100.0			
	23 POTS	40	0813.3	0813.7	2.1	10000.0	1000.0		
	100 GORK	6	0900.8	0901.1	1	100.0	50.0		
	30 UPIC	45	0900		8.5				
	23 POTS	41	0900.4	0907	8.1	50000.0	2000.0		
	113 POTS	45	0906.8	0906.8	1.7	1400.0	70.0		
	100 GORK	6	0907.1	0907.7	1.9	109.0D			
	30 UPIC	5	0918.5	0919	1				
	30 UPIC	45	0925.5		13				
	113 POTS	40	0930.8	0934.8	7.2	2800.0	85.0		
	23 POTS	40	0930.9	0935	7.5	30000.0	3000.0		
	100 GORK	41	0931.1	0931.3	7.7	100.0D			
	100 GORK		0931.1	0931.8		100.0D			
	100 GORK		0931.1	0933.7		100.0			
	100 GORK		0931.1	0935.3		100.0			
	100 GORK		0931.1	0937.3		100.0			
	237 TRST	41	0935.1	0935.2	.3	310.0			
	200 GORK	6	0935	0935.6	.9	155.0	75.0		
	200 GORK	6	1024.7	1024.9	.5	160.0	80.0		
	9285 ARCE	22	1032.5	1149.7	253				
	2830 ARCE	22	1043.4	1147.1	215				
	1500 BERL	46	1054	1104.5	34	17.0	5.9		
	650 GORK	23	1054	1107.8	3.6	10.6			
	1420 CANR	8	1055	1055.5	1.5	4.0	1.0		
	1420 ARCE	40	1055	1104.8	35.5				
	950 GORK	23	1057.3	1109 U	35.4	7.7	4.0		
	1420 CANR	45	1059.5	1104.5	22.5	13.0	3.0		
	9500 BERL	20	1100	1118.5	130	25.0			
	4995 CANR	45	1100.5	1147.5	72	13.0	5.0		
	3000 BERL	21	1100	1216.5	150	9.4			
	2695 ATHN	22	1100.5	1108.2	32.2	10.2	2.6		
	1415 ATHN	4	1100.2	1104.5	20.3	15.0	5.0		
	930 BORD	40	1100	1111.7	21	24.0	5.0		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
12	8800	ATHN	20	1101.1	1122.3	79.4	14.9	5.0		
	2950	GORK	22	1103.6E	1107.9	20 E	12.0			
	808	ONDR	45	1103 E	1147	63	330.0			
	30	UPIC	45	1103		47				
	950	GORK	1	1104.2	1104.9	1.9	5.1	2.6		
	100	GORK	48	1105.4	1111.5	8.6	100.0D			
	3000	BERL	3	1106.5	1107.8	6.5	12.0			
	950	GORK	1	1106.2	1107.6	2.6	6.0	3.0		
	23	POTS	45	1106.3	1106.5	.6	6000.0	1200.0		
	536	ONDR	45	1110	1141.5	58	170.0			
	950	GORK	46	1111.7	1112	3.4	19.5			
	950	GORK		1111.7	1114.1		19.5			
	650	GORK	46	1111.5	1112	3.5	29.0			
	950	GORK	3	1116.1	1118	3.2	10.0	5.0		
	408	TRST	27	1129.8	1144.5	34.5	140.0D			
	950	GORK	46	1130.7	1139.2	35.3	67.0			
	950	GORK		1130.7	1143		72.0			
	950	GORK		1130.7	1144.8		330.0			
	950	GORK		1130.7	1145.6		230.0			
	950	GORK		1130.7	1147.1		190.0			
	1415	ATHN	46	1131.8	1149.6	48.8	163.0	17.5		
	510	POTS	45	1131	1153	27	90.0	20.0		
	234	POTS	45	1131	1144	38	450.0	130.0		
	1500	BERL	46	1132.5	1150	102	185.0	41.0		
	1420	CANR	45	1132.5	1151.5	51	155.0	40.0		
	1415	SGMR	46	1132 U	1145.7	39.5U	69.2	20.0		
	1415	SGMR	46		1149.6		198.0			
	930	BORD	45	1132	1147.7	34	400.0	43.0		
	650	GORK	46	1132	1146.8	38	114.0			
	650	GORK		1132	1151.6		240.0			
	606	SGMR	46	1132 U	1147	38 U	152.0	60.0		
	606	SGMR	46		1151.3		239.0			
	410	SGMR	7	1132 U	1144.5	36.6	265.0	60.0		
	245	SGMR	48	1132 U	1144.4	36.8	588.0	120.0		
	2695	ATHN	22	1133.7	1147.1	47.5	29.7	9.0		
	1420	ARCE	40	1133	1149.8	41.5				
	2950	GORK	22	1134.6	1147.4	23.3	24.0			
	2695	SGMR	40	1134 U	1147	38.5U	44.8	20.0		
	3000	BERL	46	1135	1147	36	29.0			
	237	TRST	27	1135	1144.4	35	910.0			
	113	POTS	45	1138	1140	60	70.0	7.0		
	100	GORK	41	1138.9	1140.4	15.7	80000.0			
	100	GORK		1138.9	1145.7		30000.0			
	100	GORK		1138.9	1150.9		60000.0			
	23	POTS	45	1138.5	1140	3.5U	15000.0	3500.0		
	200	GORK	41	1139.2	1139.9	3.6	160.0			
	200	GORK		1139.2	1141.6		170.0D			
	260	ONDR	45	1140	1144	28	230.0D			
	225	HARS	45	1140	1144	25	250.0D	80.0		
	7000	SAOP	22	1145		15.6	3.6			
	2695	CANR	45	1157.5	1145.5	98.5	44.0	8.0		
	30	UPIC	45	1300	1305.5	6				
	18	MCMA	6	1338	1340	3			2	
	7000	SAOP	23	1523.3	1534.6	44.5	6.3			
	7000	SAOP	22	1523.3		44.5	6.3			
	2695	CANR	3	1532.5	1533	1	4.0	1.0		
	4995	CANR	3	1533	1533.5	1.5	7.0	2.0		
	4995	BOUL	3	1533	1534.5	2.5	11.0	4.0		
	2800	OTTA	21	1533	1535	10	1.4	0.7		
	2700	PENN	1	1533.9	1534.5	2.2	5.3	1.3		
	7000	SAOP	4	1534.1	1534.6	1	4.2	2.1		
	2800	OTTA	1	1534.2	1834.7	1	1.6	0.8		
	2695	BOUL	3	1534.5	1535	1.5	4.0	1.0		
	237	TRST	42	1543	1545.5	2.8	200.0			
	18	MCMA	6	1550	1551	2			1	
	18	MCMA	41	1633	1636	5			1	
	18	MCMA	6	1815	1817	4			2	
	18	BOUL	6	1902	1902	1			1	
	18	BOUL	41	1951	1955	4			1	
	18	MCMA	41	1953	1957	5			1	
	18	BOUL	41	2020	2024	5			1	
	245	BOUL	42	2023	2203	255 D			2	
	2800	OTTA	21	2045	2300	240 D	5.0			
	2800	OTTA	1	2117.9	2118	.6	1.6	0.8		
	18	MCMA	41	2124	2125	3			2	
	410	SGMR	6	2159.8	2202.1	12.2	210.0	40.0		
	245	SGMR	48	2159.8	2202	15.1	5400.0	800.0		
	2800	OTTA	8	2202	2202.7	1	40.0			
	2695	BOUL	8	2202.5	2203	1.5	25.0	10.0		
	1420	BOUL	8	2202	2202.5	2	14.0	5.0		
	1415	SGMR	45	2202.2	2202.6	9	14.1	5.0		
	1415	SGMR	45		2210.7		9.3			
	606	SGMR	45	2202	2202.5	11.9	13.0	9.0		
	606	SGMR	45		2204.3		35.3			
	200	HIRA	45	2202	2202	1	700.0	120.0		
	2800	OTTA	2	2210	2210.5	1	6.2	3.1		
	2695	BOUL	8	2210.5	2211	1.5	15.0	6.0		
	1420	BOUL	8	2210	2210.5	1.3	9.0	3.0		
	2800	OTTA	29	2211		7	2.0	1.0		
	2695	BOUL	3	2213.5	2214	2.5	3.0	1.0		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	100	HIRA	45	2242.3	2242.4	1.3	95.0	30.0		
	9400	TYKW	3	2256	2256.6	2	8.0	2.0		
	1420	BOUL	8	2256	2256.5	1	3.0	1.0		
	1415	MANI	1	2256.2	2256.7	2.3	4.2	.7		
	606	MANI	2	2256.2	2256.6	1.8	9.5	2.4		
	100	HIRA	45	2301.6	2304.9	6	200.0	60.0		
	1420	BOUL	3	2317.5	2318.5	1.5	1.0			
13	100	HIRA	45	0015.5	0015.6	.5	90.0	40.0		
	1420	CRON	3	0230	0230.5	1.5	3.0	1.0		
	100	HIRA	45	0232.8	0232.9	.5	90.0	30.0		
	100	HIRA	5	0250.3	0250.3	.5	90.0	40.0		
	100	HIRA	5	0321.6	0321.7	.5	95.0	40.0		
	100	HIRA	45	0324.7	0324.8	.5	60.0	15.0		
	606	MANI	1	0327	0327.4	1.2	3.5	1.8		
	100	HIRA	45	0327.2	0327.6	1	45.0	10.0		
	100	HIRA	45	0441	0441.8	1.5	170.0	70.0		
	100	HIRA	45	0442.5	0442.7	1	80.0	20.0		
	100	GORK	41	0500 E	0501.6	17.4	160.0D			
	100	GORK		0500 E	0503		160.0			
	100	GORK		0500 E	0510.1		120.0			
	100	GORK		0500 E	0516		1800.0			
	950	GORK	41	0509.5	0510.6	10.2	1.4	0.7		
	950	GORK		0509.5	0514.6		2.6			
	950	GORK		0509.5	0519.1		29.0			
	650	GORK	41	0513.5	0516.2	15.5	52.0			
	650	GORK		0513.5	0518.8		50.0			
	200	GORK	6	0515.1	0515.9	.9	100.0	50.0		
	100	HIRA	45	0515.5	0516	1	130.0	50.0		
	2000	TYKW	1	0518.5	0519.2	1.5	3.0	1.0		
	1420	CRON	8	0518.5	0519.5	1.5	7.0	3.0		
	1415	MANI	2	0518.3	0519.2	2	4.2	1.4		
	1000	TYKW	45	0518.4	0519	1.5	30.0	6.0		
	606	MANI	4	0518.4	0518.7	2.1	41.8	5.9		
	500	HIRA	45	0519	0519	.5	95.0	40.0		
	100	GORK	6	0527.9	0528	2.5	160.0			
	100	GORK	48	0542.4	0544.9	11.4	1600.0			
	100	GORK		0542.4	0548.1		30000.0			
	650	GORK	41	0543.7	0544.4	5	21.0			
	650	GORK		0543.7	0548.2		13.0			
	606	MANI	41	0543.8	0548.2	5.7	23.0	5.9		
	200	GORK	41	0543.6	0545.8	8.5	200.0			
	200	GORK		0543.6	0548		200.0D			
	200	GORK		0543.6	0550.5		150.0			
	100	HIRA	45	0543.2	0544.9	3	170.0	60.0		
	2950	GORK	1	0544.1	0544.3	.4	2.7			
	950	GORK	40	0544	0544.4	4.4	3.8			
	100	HIRA	45	0546.5	0548.3	2.6	220.0	80.0		
	200	HIRA	45	0547.7	0548	.8	1390.0	300.0		
	500	HIRA	45	0548	0548.4	.5	60.0	20.0		
	100	HIRA	45	0550.2	0550.4	.5	90.0	30.0		
	200	GORK	41	0612.7	0612.9	1.2	65.0			
	200	GORK		0612.7	0613.7		90.0			
	100	GORK	41	0655.7	0655.8	.9	200.0			
	100	GORK		0655.7	0656.4		50.0			
	23	POTS	41	0655.8	0700.6	5.7	10000.0	50.0		
	200	GORK	6	0656.3	0656.6	.5	170.0	85.0		
	100	GORK	6	0659.6	0700.4	1.1	200.0	100.0		
	260	ONDR	44	0700	0704.5	70	35.0			
	237	TRST	41	0727.9	0728	.5	160.0			
	200	GORK	6	0740	0740.2	9	100.0	50.0		
	113	POTS	41	0740.1	0740.4	5.9	200.0	3.0		
	100	HIRA	45	0740	0740.5	1	90.0	20.0		
	100	GORK	6	0740.2	0740.5	1.1	200.0	100.0		
	23	POTS	41	0740.1	0746	6.5	8000.0	400.0		
	100	HIRA	5	0745.8	0746.1	.8	90.0	30.0		
	100	GORK	6	0745.8	0746 U	.6	200.0D			
	9285	ARCE	22	0753.7	0901.4	250				
	2830	ARCE	23	0756.5	0905.3	278				
	650	GORK	41	0809.4	0810.1	2.6	2.0			
	650	GORK		0809.4	0811.7		2.7			
	100	HIRA	45	0809.6	0810.9	2.5	200.0	100.0		
	100	GORK	48	0809.8	0811.8	2.2	500.0			
	23	POTS	45	0809.9	0810.2	3	130000.0	5000.0		
	536	ONDR	45	0810	0811.5	1.5	60.0			
	260	ONDR	44	0810	0839	130	230.0D			
	237	TRST	41	0810	0811.6	1.9	730.0			
	234	POTS	45	0810.1	0811.6	1.6	250.0	1.0E		
	200	GORK	41	0810	0810.1	2.1	150.0			
	200	GORK		0810	0811.8		150.0			
	113	POTS	45	0810.2E	0810.5	1.6D	3500.0			
	30	UPIC	45	0810		3				
	237	TRST	41	0814.5	0814.6	.5	270.0			
	536	ONDR	45	0818	0819	1	100.0			
	3000	BERL	21	0821.5	1035	366	15.0			
	1500	BERL	21	0821	1010	369	6.8			
	1420	ARCE	23	0825.6	0842.3	72 D				
	650	GORK	41	0827.5	0829.3	7	22.0			
	650	GORK		0827.5	0830.4		4.0			
	950	GORK	1	0828.8	0829.4	2.2	3.3	1.5		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
13	808	ONDR	45	0828.5	0845.5	51.5	150.0			
	9500	BERL	22	0835	0900	365	15.0			
	650	GORK	21	0835.2	0913	67.6	21.0	6.0		
	234	POTS	45	0836	0906	120	85.0	23.0		
	606	MANI	41	0838.2	0845.6	44.8D	67.0U	20.7D		SUNSET
	2950	GORK	21	0839.4	0906	35.3	10.6			
	1500	BERL	46	0839	0845.6	8.1	258.0			
	1420	CRON	45	0839	0846.5	9.5	231.0	81.0		
	950	GORK	21	0839.3	0850.5U	43.4	4.0			
	930	BORD	45	0839	0845.2	10	109.0	6.0		
	536	ONDR	45	0839	0846	9	160.0			
	1415	ATHN	4	0840.4	0845.6	7.4	133.0	41.5		
	950	GORK	45	0840.7	0842.3	6.2	16.5			
	950	GORK		0840.7	0845.6		110.0			
	650	GORK	46	0840	0842.1	6.7	29.0			
	650	GORK		0840	0845.7		87.0			
	237	TRST	27	0840	0905.1	110	170.0			
	1420	CANR	3	0841	0842	1.5	4.0	2.0		
	4995	CANR	3	0843.5	0844.5	1.5	10.0	3.0		
	4995	CRON	3	0843	0845.5	3	13.0	4.0		
	2695	CANR	8	0843	0844.5	2	15.0	6.0		
	100	GORK	6	0843.3	0843.5	.3	35.0	15.0		
	2830	ARCE	3	0844.9	0845.9	1.8				
	2695	ATHN	3	0844.9	0846.1	2.9	13.8	3.8		
	2695	CRON	3	0844	0845.5	2	12.0	3.0		
	1420	CANR	8	0844.5	0846.5	2.5	190.0	68.0		
	9100	GORK	20	0845	0901	36	14.0	5.7		
	4995	MANI	3	0845	0845.5	3.1	10.8	3.1		
	3000	BERL	3	0845	0845.2	1.8	17.0			
	2950	GORK	3	0845	0846	1.5	14.9			
	2695	MANI	3	0845	0845.8	3.1	16.3	4.8		
	1420	ARCE	8	0845	0845.8	2				
	1415	MANI	4	0845	0845.6	3.1	215.0	20.5		
	606	MANI	8	0845.8	0846	.3	69.0	27.6		
	113	POTS	45	0850	1010	154	80.0	35.0		
	200	GORK	44	0854		96		5.0		
	100	GORK	44	0900		240 D		18.0		
	260	ONDR	44	1020	1126	290	145.0			
	245	SGMR	44	1103 E	1515.5	700 D	22.0			
	4995	CANR	45	0857.5	0859	15.5	15.0	4.0		
	4995	CRON	45	0857.5	0901	5	17.0	5.0		
	3000	BERL	46	0857.5	0905.2	10	24.0			
	2695	CANR	45	0857.5	0859	7	10.0	3.0		
	1500	BERL	46	0857.7	0906.2	36	29.0			
	1420	CRON	45	0857.5	0906.5	19	29.0	8.0		
	1420	CANR	45	0858	0906	24	20.0	5.0		
	1420	ARCE	40	0858.5	0906.2	19				
	950	GORK	46	0858.8	0901.2	8	31.0			
	950	GORK		0858.8	0905.2		53.0			
	930	BORD	45	0858	0905.2	20	68.0	5.0		
	650	GORK	46	0858.5	0900.3	24.4	76.0			
	650	GORK		0858.5	0906		23.0			
	650	GORK		0858.5	0913.7		40.0			
	536	ONDR	45	0858.5	0904.5	49	265.0			
	2695	CRON	3	0859	0901	3	8.0	3.0		
	2950	GORK	2	0900	0901.7	2.2	6.4			
	200	GORK	6	0900.1	0900.3	.4	120.0	60.0		
	100	GORK	6	0901.6	0901.7	.4	20.0	10.0		
	260	ONDR	45	0903.5	0914.5	16.5	150.0			
	200	GORK	24	0903	0925.4	68	180.0			
	2950	GORK	4	0904.7	0905.4	1.4	32.0			
	237	TRST	41	0904.3	0904.4	.2	530.0			
	113	POTS	45	0910.3	0910.7	1.3	100.0	20.0		
	100	GORK	6	0910.7	0911	2.1	140.0	70.0		
	408	TRST	27	0911	0918.3	18	1200.0			
	650	GORK	4	0930.7	0931.1	2.1	17.0	5.5		
	1420	CANR	3	0931	0932	2	3.0	1.0		
	950	GORK	1	0932.2	0932.3	.9	1.0			
	2950	GORK	20	0935.3	1042	95	12.3			
	650	GORK	3	0936	0936.7	1.5	21.0	5.0		
	113	POTS	41	0957.9	1001.6	3.8	200.0	50.0		
	23	POTS	41	0958	0958.1	3.3	1000.0	50.0		
	200	GORK	6	1001.2	1001.7	1	135.0	65.0		
	113	POTS	45	1021.5	1021.6	.6	400.0	40.0		
	408	TRST	41	1048.7	1049.3	1.4	25.0			
	23	POTS	45	1048.9	1049.4	.8	10000.0	1600.0		
	234	POTS	45	1126.4	1126.4	.1	700.0	175.0		
	113	POTS	45	1126.4	1126.4	.2	2800.0	700.0		
	408	TRST	41	1130.4	1131.6	2.3	17.0			
	237	TRST	41	1131	1131.4	.6	1900.0			
	7000	SAOP	41	1144		46.3	3.0			
	7000	SAOP	22	1144		8.4	2.0			
	408	TRST	41	1145	1145.6	.8	29.0			
	7000	SAOP	22	1152.3		18.4	2.6			
	7000	SAOP	22	1210.5		11.3	3.0			
	7000	SAOP	22	1221.2		8.6	2.8			
	9285	ARCE	20	1235.4	1249.1	52.5				
	536	ONDR	45	1241	1247	9	73.0			
	2695	CANR	8	1244.5	1245.5	2.5	15.0	6.0		
	650	GORK	46	1244.6	1245.3	6.2	15.0			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
13	650	GORK		1244.6	1247.9		36.0			
	410	SGMR	6	1244.6	1246.9	5.8	51.3	10.0		
	3000	BERL	4	1245	1247.8	7.3	14.0			
	2695	SGMR	3	1245.4	1247.8	3.8	12.8	3.0		
	1500	BERL	4	1245	1247.4	5	24.0			
	1420	ARCE	4	1245.5	1247.5	4				
	1415	SGMR	4	1245.3	1247.4	3.9	24.8	6.0		
	1415	ATHN	4	1245.1	1247.3	5.1	50.5	5.8		
	950	GORK	46	1245.3	1245.5	3.5	5.8			
	950	GORK		1245.3	1247.4		24.0			
	808	ONDR	45	1245	1247.5	5	85.0			
	606	SGMR	46	1245	1245.3	5	9.9	6.0		
	606	SGMR	46		1247.4		34.1			
	2695	ATHN	3	1246.7	1247.7	2.5	18.9	6.3		
	1420	CANR	8	1246	1247	2.5	20.0	8.0		
	2830	ARCE	40	1247.1	1247.6	3				
	245	BOUL	42	1329	1427	59			2	
	9285	ARCE	4	1443.5	1444.7	1.8				
	1420	BOUL	3	1550.5	1551	1.5	7.0	2.0		
	2695	CANR	3	1547.5	1548	1	6.0	2.0		
	4995	CANR	3	1548	1548.5	1.5	7.0	3.0		
	2830	ARCE	3	1549.1	1550.5	2.8				
	2695	ATHN	1	1549.6	1550.5	3.1	6.3	2.5		
	1420	CANR	3	1549.5	1550	6.5	6.0	2.0		
	1415	ATHN	2	1549.2	1550.5	3.5	8.1	2.3		
	245	SGMR	6	1549.9	1550.2	1.4	67.3	20.0		
	2800	OTTA	1	1550	1550.5	2	5.0	2.2		
	2695	SGMR	2	1550	1550.5	1.6	7.0	2.5		
	2695	BOUL	3	1550	1551	2.5	7.0	2.0		
	1420	ARCE	2	1550.2	1550.6	2.6				
	1415	SGMR	1	1550.1	1550.9	2.2	7.6	2.5		
	930	BORD	1	1550	1550.5	2	9.0	3.0		
	606	SGMR	2	1550.1	1550.6	.8	6.2	2.0		
	410	SGMR	48	1550	1550.2	1.6	555.0	140.0		
	245	BOUL	42	1713	1822	107			1	
	2800	OTTA	21	1725	1745	200	2.4	1.8		
	1420	BOUL	40	1727	1729.5	4	5.0	1.0		
	2800	OTTA	20	1800	1820	50	3.8	1.9		
	7000	SAOP	22	1832		40.4	4.7			
	18	MCNA	6	1919	1921	2			3	
	2800	OTTA	1	1947.5	1949	5.5	5.6	1.4		
	8800	SGMR	1	1948.5	1950.7	7.4	4.9	2.4		
	4995	SGMR	1	1948.5	1950.5	8.6	8.0	4.0		
	2695	SGMR	1	1948.2	1949.1	7.9	4.4	2.2		
	2695	BOUL	45	1948.5	1949.5	6	5.0	2.0		
	1420	BOUL	8	2007.5	2008	1	7.0	2.0		
	2695	BOUL	3	2106.5	2107.5	1.5	7.0	2.0		
	2695	BOUL	4	2111.5	2113.5	2.5	38.0	12.0		
	2695	PENT	21	2120	2240	155	6.0	3.0		
	2695	BOUL	3	2214	2215	1.5	7.0	3.0		
	2695	BOUL	8	2218.5	2220	1.5	29.0	10.0		
	2695	BOUL	9	2229.5	2234	6.5	8.0	3.0		
	2695	PENT	1	2230	2233.5	7	5.2	2.4		
	100	HIRA	45	2304	2304.3	1	120.0	20.0		
14	100	HIRA	5	0019.5	0019.6	.5	100.0	30.0		
	3750	TYKW	45	0109	0111	18	4.0	2.0		
	2695	CRON	45	0109	0111	6.5	6.0	2.0		
	2000	TYKW	1	0109	0112	10	2.0	1.0		
	1420	CRON	3	0109.5	0111	3.5	3.0	1.0		
	9400	TYKW	20	0110	0118	18	4.0	2.0		
	200	GORK	44	0516.7		163		5.0		
	3000	BERL	20	0715	0756	103	7.4			
	9500	BERL	20	0730	0755	85	8.4			
	260	ONDR	44	0900	0948.5	353	125.0			
	200	GORK	44	0943		197 D		10.0		
	100	GORK	44	0949		185		5.0		
	410	SGMR	44	1102 E	1250.2	702 D	36.6			
	245	SGMR	44	1102 E	1243.3	702 D	88.2			
	536	ONDR	45	0924.5	0929.5	24	55.0			
	4995	CANR	3	0925.5	0926	2	9.0	4.0		
	2695	CANR	3	0925	0926	2	4.0	2.0		
	9500	BERL	20	0926	0927.8	39	7.0			
	4995	CRON	3	0926.5	0927.5	2.5	7.0	3.0		
	2830	ARCE	20	0926.5	0928.6	6				
	9100	GORK	20	0927.4	0927.9	8.6	7.0	2.8		
	4995	MANI	4	0927.1	0927.9	5	14.0	4.7		
	3000	BERL	2	0927.5	0928.7	2.5	5.8	2.6		
	2695	ATHN	1	0927.1	0928.2	2.5	6.5	1.3		
	2695	MANI	1	0927.1	0927.7	5	7.0	2.0		
	1500	BERL	2	0927	0928.5	5.5	4.4	1.6		
	1420	CRON	3	0927.5	0928	2.5	6.0	2.0		
	1420	ARCE	2	0927.5	0928	3.7				
	1415	ATHN	1	0927.1	0928.3	2.5	4.1	1.4		
	1415	MANI	1	0927.1	0927.7	5	3.5	.9		
	930	BORD	45	0927	0927.7	4	22.0	3.0		
	808	ONDR	45	0927	0928.5	13	80.0			
	408	TRST	41	0927	0927.7	1.7	370.0			
	1420	CANR	3	0928	0929	2.5	3.0	1.0		
	237	TRST	41	0928.6	0928.7	.2	660.0			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
14	408	TRST	45	1111.8	1111.9	.1	28.0	9.0		
	2830	ARCE	1	1127.6	1128	3				
	1500	BERL	1	1127.8	1128.1	.7	1.2			
	1420	ARCE	1	1127.9	1128.2	.7				
	237	TRST	45	1127.7	1127.9	.4	200.0	50.0		
	100	GORK	6	1127.9	1128.2	.9	100.0			
	100	GORK	41	1151.6	1152.6	5.2	100.0			
	100	GORK		1151.6	1155.5		100.0			
	408	TRST	41	1201.5	1202.7	3.8	38.0			
	9500	BERL	20	1247.5	1250	21	5.6			
	3000	BERL	3	1248.5	1250.4	4.5U	11.0	2.6		
	1500	BERL	1	1248	1250	6	2.0			
	2830	ARCE	1	1249.9	1250.2	1.2				
	2800	OTTA	2	1249.5	1250	1.5	4.6	1.6		
	536	ONDR	45	1249 .	1250	3.5	55.0			
	4995	SGMR	1	1250.1	1250.3	1	4.6	2.2		
	2695	SGMR	1	1250	1250.3	1.1	7.2	3.4		
	1420	ARCE	1	1250.2	1250.5	1				
	245	BOUL	42	1322 E	1505	200 D			3	
	18	MCMA	6	1326	1329	4			2	
	4995	CANR	45	1345	1347	4.5	14.0	4.0		
	3000	BERL	4	1345.5	1349.3	8.5	12.0	4.2		
	2800	OTTA	4	1345	1348.5	11	12.0	4.0		
	2695	CANR	45	1345	1346.5	6.5	13.0	5.0		
	9285	ARCE	20	1346.3	1349.8	20				
	2830	ARCE	22	1346.3	1348.4	10				
	1500	BERL	2	1346.2	1348.8	7.2	4.8	1.6		
	1420	ARCE	22	1346.7	1348.6	9.4				
	1415	SGMR	1	1346.7	1348.7	8	3.8	1.9		
	9500	BERL	20	1347.5	1349.6	22	7.0			
	2700	PENN	5	1347	1348.4					
	2695	ATHN	1	1347.2	1348.9	5.1	7.5	2.5		
	1420	CANR	3	1347	1348.5	5.5	4.0	1.0		
	1415	ATHN	1	1347.4	1348.6	4.1	8.4	2.8		
	606	SGMR	4	1347.1	1347.2	7.1	105.0	42.0		
	536	ONDR	45	1347	1348	3.5	170.0			
	410	SGMR	6	1347.9	1348.2	2.3	31.8	12.2		
	10700	PENN	1	1348.2	1349.7	8.6	6.4	2.8		
	8800	ATHN	1	1348.1	1348.5	4.1	6.3	2.4		
	930	BORD	41	1348	1349.3	2	10.0	2.0		
	1415	SGMR	40	1354.8	1357.9	6.5	15.2	6.0		
	2695	SGMR	4	1356.1	1356.5	.8	14.1	5.8		
	9500	BERL	20	1440	1505		7.0			
	2800	OTTA	21	1440	1505	310	7.8	3.9		
	410	SGMR	6	1449.8	1508.7	64.2	43.9	21.8		
	3000	BERL	22	1450	1516.6		5.8			
	808	ONDR	45	1450	1459.5	20	80.0			
	536	ONDR	45	1450	1459	35	75.0			
	245	SGMR	7	1450.4	1504.6	64.9	270.0	110.0		
	234	POTS	45	1450 U	1507.5U	82 D	120.0			
	606	SGMR	22	1451.7	1459.1	60.5	18.0	9.0		
	8800	SGMR	20	1452.5	1536	52.5	10.4	5.2		
	4995	SGMR	20	1452.3	1509.1	53.7	8.0	4.0		
	2695	SGMR	20	1452	1508.8	54	6.1	3.0		
	1415	SGMR	22	1452.2	1458.4	61.8	9.3	4.6		
	1500	BERL	22	1453	1504		5.6			
	260	ONDR	45	1453	1500	40 D	120.0			
	930	BORD	40	1454	1500	17	7.0	3.0		
	237	TRST	27	1455	1505.2	70	200.0			
	113	POTS	45	1502 U	1520 U	73 D	50.0			
	225	HARS	3	1506	1507.5	4	300.0	60.0		
	606	SGMR	46	1647.7	1647.9	3	18.3	15.0		
	606	SGMR	46		1648.4		42.2			
	410	SGMR	6	1648.2	1648.3	1.9	20.6	8.0		
	2800	OTTA	22	1700	1705	10	1.6	0.8		
	1415	SGMR	1	1704.1	1705	2.2	.7	.2		
	606	SGMR	1	1704.2	1704.3	1.6	3.7	1.0		
	410	SGMR	6	1704.2	1704.4	5	118.7	35.0		
	245	SGMR	6	1704.1	1707.1	4.8	19.9	6.0		
	1420	CANR	8	1830.5	1831.5	2	5.0	2.0		
	2800	OTTA	21	1848	1854	45	1.6	0.8		
	606	SGMR	2	1918.6	1920.6	4	4.4	1.1		
	15400	SGMR	4	1919.8	1920.1	1.7	20.2	5.0		
	10700	PENN	3	1919.8	1920.2	2.6	21.2	7.2		
	9400	HUAN	4	1919.1	1920.3	6.1	32.8	7.8		
	8800	SGMR	4	1919.2	1920.2	6.6	36.5	9.1		
	7000	SAOP	4	1919.3	1920.3	2.4	13.8	6.7		
	4995	BOUL	3	1919	1919.5	2	19.0	6.0		
	4995	SGMR	4	1919.3	1920.2	4.2	17.2	4.3		
	2800	OTTA	1	1919.2	1920.2	7	4.4	1.5		
	2700	PENN	3	1919.6	1920.2	2.2	11.3	4.6		
	2695	SGMR	1	1919.6	1920.3	3.8	2.6	1.0		
	1415	SGMR	1	1919.4	1920.1	6.1	1.4	1.0		
	960	PENN	1	1919.6	1920.5	2.6	1.6	0.6		
	2695	BOUL	45	1920	1920.5	2	7.0	2.0		
	1420	BOUL	45	1920.5	1921.5	1.5	1.0			
	18	BOUL	6	2221	2224	4			2	
	245	BOUL	42	2223	2256	90			1	
	2695	PENT	20	2315	2340	105	3.4	1.7		
	100	HIRA	45	2349	2349.1	1	120.0	30.0		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
15	100	HIRA	45	0236.2	0236.5	.8	55.0	15.0		
	100	HIRA	45	0237	0237.7	1	110.0	30.0		
	100	GORK	44	0609		62		5.0		
	260	ONDR	41	0640	0656.5	360	205.0			
	408	TRST	41	1110.4	1112.7	4.4	20.0			
	113	POTS	8	1211.8	1211.9	.1	300.0	100.0		
	4995	CANR	3	1238	1242	5	5.0	1.0		
	237	TRST	5	1508.6	1508.6	.1	78.0	25.0		
	2800	OTTA	2	1551.3	1551.7	.6	1.4	0.7		
	113	POTS	8	1608.6	1608.7	.2	2000.0	700.0		
	2800	OTTA	21	1625		105	2.0	1.4		
	2800	OTTA	1	1628	1630.3	4	1.2	0.6		
	1420	BOUL	3	1743	1743.5	2	2.0	1.0		
	245	SGMR	43	2036.5	2129.9	129.5D	97.8			
	606	SGMR	43	2037.5	2058.8	128.5D	12.0			
	2800	OTTA	21	2040	2255	260 D	14.8			
	410	SGMR	43	2040.1	2131.7	125.9D	23.9			
	200	HIRA	45	2119	2140	71	375.0	60.0		
	245	BOUL	7	2120	2130	69			2	
	100	HIRA	45	2129	2130.4	1	70.0	20.0		
	2800	OTTA	40	2140		20	2.4			
	100	HIRA	27	2140	2228	170	40.0	10.0		
	2695	BOUL	3	2144.5	2145	2	3.0	1.0		
	1420	BOUL	3	2144	2146	2.5	2.0	1.0		
	2695	BOUL	3	2150.5	2151	2	4.0	1.0		
	1420	BOUL	3	2153	2155.5	3	3.0	1.0		
16	100	GORK	44	0637		83		5.0		
	100	GORK	41	0720	0723.5	26.5	150.0			
	100	GORK		0720	0733		150.0			
	100	GORK		0720	0740.4		100.0			
	100	GORK		0720	0745.1		100.0			
	260	ONDR	44	0730	1250.5	460	70.0			
	536	ONDR	8	0803.5	0803.5	.5	63.0			
	100	GORK	44	0832		208 D		5.0		
	408	TRST	41	1022.2	1022.5	.6	12.0			
	410	SGMR	44	1059 E	1728.6	708 D	35.3			
	245	SGMR	44	1059 E	1346.3	708 D	56.3			
	245	BOUL	42	1414	1722	629 D			2	
	18	MCMA	6	1207	1209	2			2	
	7000	SAOP	22	1309.2		42.4	3.3			
	2800	OTTA	21	1858	1945	85	4.0	1.9		
	2800	OTTA	1	1909.5	1910	7	1.6	0.8		
	2700	PENN	5	1921.7	1924.9					
	2695	BOUL	45	1922.5	1924.5	6.5	5.0	2.0		
	2800	OTTA	1	1923.5	1925	6	6.0	3.0		
	1420	BOUL	3	1924	1926	5	4.0	1.0		
17	260	ONDR	41	0810	0940	410	30.0			
	30	UPIC	45	0823.5	0824	2.3				
	245	SGMR	44	1056 E	1713.6	712 D	23.3			
	100	GORK	44	1100		60 D		5.0		
	1420	ARCE	2	1157.7	1158.1	2.3				
	930	BORD	45	1157	1158.1	2	29.0	3.0		
	2830	ARCE	1	1158	1158.3	1				
	2800	OTTA	1	1620.5	1621.5	7.5	1.8	0.9		
	7000	SAOP	22	1708.7		24.4	3.6			
	2800	OTTA	20	2030	2040	30	1.6	0.8		
	2800	OTTA	21	2105	2230	205	3.6	1.8		
	2800	OTTA	20	2110	2111	15	1.2	0.6		
18	1415	MANI	4	0103.8	0106.6	5.7	12.9	4.6		
	2695	CRON	45	0545	0547.5	5.5	10.0	2.0		
	1420	CRON	3	0545	0547.5	2.5	3.0	1.0		
	2695	CANR	3	0733.5	0734.5	2.5	5.0	2.0		
	4995	CANR	3	0734	0735	2	9.0	3.0		
	1420	CANR	45	0734	0735.5	3	3.0	1.0		
	408	TRST	42	1044.3	1045.1	2	30.0			
	225	HARS	1	1239.5	1240.5	2	60.0	20.0		
	18	BOUL	42	2302	2330	60			3	
19	260	ONDR	41	0720	1008.5	430	30.0			
	245	SGMR	44	1053 E	1338.6	377.2D	81.0			
	536	ONDR	45	0726	0726	6	70.0			
	650	GORK	40	0727.1	0727.6	5.6	18.0			
	100	GORK	6	0745.4	0745.8	.6	13.0	5.0		
	536	ONDR	45	0912	0917	11.5	50.0			
	650	GORK	41	0916.1	0917.5	7.8	5.5			
	650	GORK		0916.1	0921		3.5			
	100	GORK	24	0927.7	0949	39.3	150.0	30.0		
	100	GORK	6	1132	1132.2	.3	50.0	25.0		
	7000	SAOP	22	1141.1		15.4	3.3			
	18	MCMA	6	1337	1342	5			3	
	2800	OTTA	20	1340	1600	255	9.8	4.9		
	2700	PENN	20	1412.3	1606.5	203	11.7	7.1		
	9400	HUAN	20	1600.4	1629.9	53	5.6	3.2		
	18	MCMA	42	1615	1619	11			1	
	18	MCMA	6	1636	1637	2			1	
	18	MCMA	6	1646	1647	3			1	

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	18	MCMA	41	1745	1748	18			2	
	18	MCMA	41	1924	1927	13			2	
	18	MCMA	6	2007	2008	1			1	
	18	MCMA	6	2012	2014	4			2	
	18	MCMA	6	2019	2020	2			1	
	18	MCMA	6	2027	2028	2			1	
	100	HIRA	5	2213	2213.4	.5	100.0	60.0	1	
20	200	HIRA	45	0116	0116.8	1	300.0	100.0		
	100	HIRA	45	0116.5	0117	.6	40.0	15.0		
	200	HIRA	45	0117.2	0117.5	.8	360.0	60.0		
	100	HIRA	5	0117.5	0117.6	.5	100.0	40.0		
	200	HIRA	45	0507	0508	1.5	60.0	10.0		
	200	GORK	41	0507.8	0508.3	5.3	100.0			
	200	GORK		0507.8	0512.1		200.0			
	650	GORK	3	0510.9	0511.9	2.1	16.0	8.0		
	950	GORK	2	0511.6	0512.4	1.5	5.5			
	200	HIRA	45	0511	0511.5	1	250.0	40.0		
	260	ONDR	45	0712	0721.5	10.5	50.0			
	237	TRST	42	0717.9	0720.8	3.5	240.0			
	408	TRST	42	0952.7	0953.8	1.4	27.0			
	408	TRST	41	1031.2	1031.3	.3	15.0			
	245	SGMR	44	1051 E	1254	289.6D	36.4			
	260	ONDR	44	1110	1113.5	230	230.0D			
	100	GORK	43	1113.1	1113.8	166				
	100	GORK		1113.1	1129.3					
	410	SGMR	43	1210.5	1223.3	119.7	36.4			
	2830	ARCE	21	1107.4	1116.8	36				
	2695	CANR	45	1111.5	1113	5.5	36.0	10.0		
	408	TRST	42	1111.2	1113.3	7.1	95.0D			
	260	ONDR	45	1111	1113.5	3	230.0D			
	237	TRST	42	1111.9	1113.3	6.1	19500.0			
	234	POTS	45	1111.5	1113	6.5U	5300.0	250.0		
	4995	CANR	45	1112	1113.5	2.5	27.0	9.0		
	808	ONDR	45	1112	1114	5.5	100.0			
	536	ONDR	45	1112.5	1112.5	6	145.0			
	510	POTS	45	1112.5	1113	5.5U	300.0	15.0		
	225	HARS	1	1112	1113.5	3	90.0D	70.0		
	200	GORK	41	1112	1112.2	13.3	130.0			
	200	GORK		1112	1115 U		130.0D			
	200	GORK		1112	1115.8		130.0			
	113	POTS	45	1112	1118.5	13	700.0	70.0		
	9500	BERL	4	1113.5	1114.5	12	13.0	4.3		
	9285	ARCE	3	1113.8	1114.6	3				
	9100	GORK	1	1113.8	1114.6	4.2	22.0	6.3		
	8800	ATHN	3	1113.4	1114.5	5.4	18.2	4.6		
	8800	SGMR	4	1113.6	1114.5	2.4	18.4	6.6		
	4995	SGMR	4	1113.5	1114.6	4	17.6	6.2		
	4995	ATHN	3	1113.3	1114.5	7.3	18.1	4.8		
	3000	BERL	4	1113.3	1114.5	9.2	30.0	4.8		
	2830	ARCE	40	1113.4	1114.3	3				
	2695	ATHN	4	1113.2	1114.3	5.7	32.4	6.8		
	2695	SGMR	4	1113.5	1114.5	3.3	29.8	12.0		
	1500	BERL	4	1113.2	1114.3	7.8	74.0	16.0		
	1420	CANR	8	1113.5	1115.5	4	84.0	30.0		
	1420	ARCE	4	1113.4	1114.3	2.8				
	1415	SGMR	4	1113.4	1114.1	8.6	101.0	40.1		
	1415	ATHN	4	1113	1114	4.7	106.7	12.7		
	950	GORK	4	1113.1	1114	3.9	54.0	11.7		
	930	BORD	45	1113	1114	4	94.0	5.0		
	650	GORK	45	1113	1113.3	3.7	30.0			
	650	GORK		1113	1114.3		29.0			
	650	GORK		1113	1115.4		25.0			
	606	SGMR	4	1113.4	1113.6	5.3	34.6	13.8		
	410	SGMR	6	1113	1113.4	6.3	183.0	60.0		
	245	SGMR	48	1113.2	1113.4	9.3	750.0	250.0		
	9285	ARCE	29	1116.8		28				
	8800	ATHN	4	1158.8	1159.3	2.3	30.4	6.1		
	245	BOUL	42	1318	1323	44			1	
	18	MCMA	6	1342	1343	2			2	
	606	SGMR	1	1429.4	1429.7	.6	1.2	.4		
	410	SGMR	6	1429.3	1429.7	.8	11.8	3.0		
	245	SGMR	6	1429.1	1429.7	1.4	12.3	3.0		
	410	SGMR	6	1756.8	1759.1	8.6	6.7	1.0		
	245	SGMR	6	1756.6	1757	9.6	31.8	5.0		
	606	SGMR	40	1758.9	1802.1	12.1	9.0	2.0		
	606	SGMR	40	2132.5	2133	2.7	9.0	2.0		
	410	SGMR	6	2132.6	2132.8	2.4	69.3	10.0		
	245	SGMR	48	2132.5	2133.9	2.5	510.0	75.0		
	200	HIRA	45	2132.4	2133.5	2.5	460.0	60.0		
	1415	SGMR	2	2134	2134.1	1	3.8	1.1		
	410	SGMR	6	2202.7	2203.2	.8	78.1	10.0		
	245	SGMR	6	2202.4	2203.2	1.3	40.5	7.0		
	245	SGMR	6	2227.5	2230.4	6	113.4	38.0		
	410	SGMR	6	2229.6	2230.4	1.3	19.7	6.6		
	200	HIRA	45	2229.8	2230	.8	175.0	40.0		
	200	HIRA	45	2256	2256.5	1	200.0	70.0		
21	260	ONDR	8	1145.5	1145.5	.5	50.0			
	237	TRST	45	1145.8	1146.1	.4	180.0	70.0		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	260	ONDR	8	1153	1155	.5	40.0			
	2695	BOUL	3	1359.5	1400.5	2.5	4.0	1.0		
	410	SGMR	6	1639.4	1639.7	1.1	12.0	3.5		
	245	SGMR	7	1639.3	1639.7	1.5	295.0	100.0		
	225	HARS	1	1639.5	1640	2	90.0D	35.0		
	18	MCMA	42	1906	1908	19			1	
22	200	HIRA	27	0115	0152	75	20.0	10.0		
	100	HIRA	27	0130	0207	65	50.0	10.0		
	7000	SAOP	22	1144.5		48.9	3.5			
	2695	CANR	3	1207.5	1209.5	4.5	4.0	1.0		
	4995	CANR	3	1208	1209.5	3.5	7.0	3.0		
	2800	OTTA	21	1208	1215	13	2.2	1.1		
	2800	OTTA	1	1209	1209.7	2.5	1.6	0.8		
	2800	OTTA	26	1341		20	1.8			
	2800	OTTA	20	1435	1505	60	2.0	1.0		
	2800	OTTA	24	1540		30	1.8			
	18	BOUL	6	1826	1828	3			1	
	18	MCMA	6	1829	1830	3			1	
	2800	OTTA	20	1840	1855	30	1.8	1.2		
	410	SGMR	6	2025.4	2025.5	3.6	163.0	20.0		
	245	SGMR	6	2025.8	2027.5	3.7	49.6	5.0		
	2800	OTTA	1	2027.5	2027.6	.8	1.6	0.8		
	2700	PENN	1	2027.3	2027.6	1	4.3	1.7		
	1420	BOUL	8	2027.5	2028	1.5	3.0	1.0		
	1415	SGMR	1	2027.6	2027.7	2.4	3.2	1.0		
	960	PENN	1	2027.7	2028	.8	1.6	0.8		
	606	SGMR	1	2027.2	2027.6	2.1	2.8	1.0		
	2800	OTTA	26	2040		10	1.4			
	100	HIRA	45	2119.5	2120	2	110.0	30.0		
	18	MCMA	6	2119	1922	4			1	
	18	BOUL	6	2119	2120	2			1	
	606	SGMR	22	2151.3	2200.3	30.7	11.0	5.0		
	245	SGMR	6	2153.2	2204	18.7	1.7	.5		
	2695	PENT	24	2225		40	2.8			
	2695	PENT	1	2328.4	2328.5	1	2.0	1.0		
23	1415	MANI	1	0108.3	0108.4	1.7	5.3	2.1		
	606	MANI	3	0108.3	0108.4	1.7	15.3	4.7		
	200	HIRA	45	0108	0108	1.3	480.0	70.0		
	100	HIRA	45	0108	0108.4	2	110.0	30.0		
	100	HIRA	45	0128.2	0128.5	1	190.0	80.0		
	9500	BERL	4	1004.5	1006	4.5	18.0	4.0		
	3000	BERL	2	1004.8	1005.9	2.2	4.8	1.5		
	2695	CANR	8	1004.5	1005	1.5	6.0	2.0		
	9285	ARCE	1	1005.2	1005.9	3				
	9100	GORK	1	1005.6	1006	.8	17.0	8.4		
	8800	ATHN	3	1005	1005.6	2.7	12.0	3.0		
	4995	CANR	8	1005	1006	1.5	10.0	4.0		
	2830	ARCE	1	1005.2	1005.9	1.6				
	2695	ATHN	1	1005.3	1005.6	2.1	4.6	1.4		
	1500	BERL	2	1005	1005.8	2	5.2	1.5		
	1420	ARCE	2	1005.3	1006.1	2.4				
	1415	ATHN	1	1005.1	1005.6	1.5	8.9	2.4		
	950	GORK	4	1005.1E	1005.1	2.1E	83.0			
	930	BORD	45	1005	1006.6	2	14.0	2.0		
	808	ONDR	45	1005	1005.5	1.5	180.0			
	650	GORK	2	1005.6E	1005.7	.7E	9.0			
	536	ONDR	45	1005	1005.5	1	65.0			
	408	TRST	5	1005.8	1005.8	.1	32.0			
	200	GORK	6	1005.1E	1005.1	.8E	300.0			
	100	GORK	6	1005.7	1005.9	.5	4.0	2.0		
	1420	CANR	8	1006	1006.5	1.5	6.0	2.0		
	260	ONDR	44	1030	1132.5	270	35.0			
	245	SGMR	44	1046 E	2155.5	728 D	305.0			
	113	POTS	41	1137.7	1140.6	3.1	100.0	5.0		
	245	BOUL	42	1316	1339	43			1	
	808	ONDR	45	1320	1322	2	75.0			
	536	ONDR	45	1320	1320.5	.5	53.0			
	2800	OTTA	23	1330		175	1.8			
	930	BORD	8	1404	1404.8	1	96.0	1.0		
	2800	OTTA	1	1407	1407.3	.6	1.0	0.5		
	2700	PENN	1	1407	1407.4	1.2	3.1	2.0		
	930	BORD	45	1600	1600.3	1	24.0	2.0		
	410	SGMR	6	1738	1738.2	.5	13.1	2.5		
	245	SGMR	49	1738	1738.2	.5	2370.0	470.0		
	2800	OTTA	20	1740	1807	45	1.4	0.8		
	410	SGMR	6	1744.2	1744.4	1	18.9	2.0		
	245	SGMR	6	1744.4	1744.7	1.1	19.7	4.0		
	410	SGMR	6	1918.9	1919.5	.7	30.0	10.0		
	2800	OTTA	1	1919	1919.5	1	2.0	1.0		
	245	SGMR	6	1919.4	1920.1	1.2	19.5	4.0		
	245	SGMR	48	1943.8	1951.4	8.7	515.0	120.0		
	410	SGMR	6	1946.5	1952	6.3	32.4	11.0		
	960	PENN	41	1953.3	2013.4	79.7	39.0			
	18	MCMA	41	2006	2008	4			1	
	2700	PENN	8	2013.9	2013.4	.2	17.0			
	18	MCMA	42	2031	2034	11			1	
	606	SGMR	41	2041	2043.9	4.3	156.0	15.0		
	2700	PENN	40	2042.5		3				

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
23	2800	OTTA	8	2043.8	2043.9	1.2	2.4			
	2695	SGMR	1	2043.8	2043.9	1.5	1.3	.5		
	1420	BOUL	45	2043.5	2044	2.5	6.0	2.0		
	1415	SGMR	45	2043.7	2043.9	2.7	9.0	3.0		
	1415	SGMR	45		2045.1		5.0			
	410	SGMR	6	2043.4	2043.9	3.6	39.6	6.0		
	410	SGMR	6	2113.9	2114.6	1.5	29.3	4.0		
	245	SGMR	6	2114	2114.4	1.6	16.9	3.0		
	18	MCMA	6	2116	2117	2			1	
	100	HIRA	5	2117.5	2117.6	.8	60.0	15.0		
	1415	MANI	8	2209.3	2210.3	1.7	56.0	7.5		
	606	MANI	41	2209.5	2215.7	19.1	107.0	7.7		
	9400	HUAN	3	2214.9	2215.9	2.3	27.4	8.9		
	4995	BOUL	8	2214.5	2215.5	2	22.0	7.0		
	1000	TYKW	41	2214	2215	5	4.0	1.0		
	606	SGMR	4	2214.9	2215.8	7.3	21.1	4.0		
	9400	TYKW	3	2215.5	2216	4	30.0	5.0		
	3750	TYKW	3	2215	2216	2	9.0	3.0		
	2800	OTTA	1	2215	2215.8	2	6.6	3.3		
	2695	BOUL	8	2215.5	2216.5	2.5	7.0	2.0		
	2000	TYKW	1	2215.5	2216	1.5	5.0	2.0		
	1420	BOUL	45	2215.5	2216.5	6.5	5.0	2.0		
	1415	SGMR	2	2215.1	2216.1	7.9	4.2	1.0		
	410	SGMR	6	2215.3	2218.6	8.2	68.9	6.0		
	245	SGMR	7	2215.7	2218.3	9.3	430.0	40.0		
	4995	BOUL	8	2310.5	2311.5	2	13.0	4.0		
	2695	CRON	3	2310.5	2311.5	2.5	5.0	2.0		
	606	MANI	40	2310.6	2311.8	3.8	33.0	6.4		
	9400	TYKW	3	2311.7	2312	1.5	8.0	3.0		
	8800	MANI	3	2311	2312.1	2.8	12.0	4.0		
	4995	CRON	8	2311	2311.5	2	13.0	5.0		
	4995	MANI	3	2311	2312.2	3.1	15.5	7.1		
	3750	TYKW	1	2311.7	2312.1	1.5	6.0	2.0		
	2695	PENT	1	2311.8	2312.1	3	6.0	2.0		
	2695	MANI	3	2311.2	2312.2	4.1	13.8	6.4		
	2000	TYKW	1	2311.8	2312.2	1.5	7.0	3.0		
	1420	CRON	8	2311.5	2312.5	1.5	9.0	4.0		
	1420	BOUL	8	2311.5	2312.5	2	5.0	2.0		
	1415	MANI	3	2311.2	2312.2	4.1	10.0	4.0		
	1000	TYKW	1	2311	2312.2	3	7.0	2.0		
	2695	BOUL	8	2312	2313	1.5	9.0	4.0		
24	3750	TYKW	1	0024.5	0024.9	1	2.0	1.0		
	3750	TYKW	1	0050.5	0051.2	2.5	1.0	0.5		
	9400	TYKW	20	0300	0326	90	11.0	4.0		
	3750	TYKW	20	0300	0326	140	6.0	3.0		
	1420	CRON	45	0304	0312	8.5	6.0	2.0		
	100	HIRA	27	0310	0329	150	40.0	15.0		
	606	MANI	40	0447.9E	0459.6	12.8D	55.0	7.0D		PEAKING
	9400	TYKW	45	0456	0459.7	8	49.0	10.0		
	8800	ATHN	1	0456.9	0459.6	4.5	4.6	1.5		
	8800	MANI	4	0456.6	0459.7	7.4	53.0	19.1		
	4995	CRON	3	0456	0459.5	4.5	26.0	9.0		
	4995	MANI	4	0456.6	0456.7	7.4	36.1	8.3		
	3750	TYKW	45	0456.5	0459.3	5	16.0	4.0		
	2695	ATHN	4	0456.9	0457.2	4.5	12.5	3.7		
	2695	MANI	40	0456.6	0457.2	4.5	42.6	9.0		
	2000	TYKW	45	0456.5	0457.1	1.5	94.0	16.0		
	1420	CRON	45	0456	0459	5.5	70.0	14.0		
	1415	ATHN	46	0456.6	0458.4	3.8	32.2	10.1		
	1415	MANI	40	0456.6	0459	4.5	63.0	9.6		
	1000	TYKW	45	0456.5	0457.4	1.5	23.0	5.0		
	2695	CRON	45	0457	0458	4	29.0	7.0		
	2000	TYKW	45	0458.5	0459.1	2.5	44.0	11.0		
	1000	TYKW	45	0458.5	0459.4	2.5	40.0	7.0		
	200	GORK	44	0503 E		45		5.0		
	100	GORK	44	0506 E		114		5.0		
	650	GORK	21	0504.5E	0514.4	52.5	8.2	3.5		
	650	GORK	45	0523.1	0523.4	1.7	5.0			
	650	GORK		0523.1	0524.1		11.5			
	8800	MANI	4	0553.7	0554.1	.9	31.8	8.5		
	4995	MANI	4	0553.7	0554.3	.9	11.1	2.8		
	2695	MANI	1	0553.7	0554.3	.9	6.7	2.2		
	1415	MANI	1	0553.7	0554.3	.9	2.9	1.0		
	1415	ATHN	2	0609.8	0614.1	15.1	5.8	1.4		
	2000	TYKW	45	0611	0614.2	5	5.0	2.0		
	1000	TYKW	41	0611	0614.2	5	8.0	2.0		
	950	GORK	41	0611	0611.6	4.2	9.0			
	650	GORK	41	0611.4	0611.6	3.1	95.0			
	650	GORK		0611.4	0613.1U		95.0D			
	650	GORK		0611.4	0614.2		146.0			
	606	MANI	40	0611.4	0613.1	3.3	330.0	19.2		
	9100	GORK	1	0612.5	0614.2	3.2	19.6	7.0		
	8800	ATHN	4	0612.4	0615.3	4.2	13.7	4.6		
	8800	MANI	4	0612.9	0614.2	2.4	17.0	4.2		
	2695	ATHN	4	0612.5	0614.1	3.3	10.0	3.2		
	1420	CRON	45	0612.5	0614.5	2.5	5.0	2.0		
	1415	MANI	2	0612.9	0614.2	2.3	3.8	1.0		
	9400	TYKW	45	0613	0614.2	3	10.0	4.0		
	4995	CRON	3	0613	0614	2	16.0	7.0		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
24	4995 MANI	4	0613	0614.2	2.8	12.5	2.8		
	3750 TYKW	1	0613.8	0614.2	2	6.0	2.0		
	2950 GORK	1	0613	0614.2	2	7.5	1.7		
	2695 MANI	2	0613.1	0614.1	2.1	6.7	2.2		
	2695 CRON	3	0613	0613.5	1.5	5.0	2.0		
	650 GORK	46	0636.2	0637.6U	2.7	97.0D			
	650 GORK		0636.2	0637.1		51.0			
	650 GORK		0636.2	0637.3		29.0			
	3750 TYKW	1	0638	0640	4	2.0	1.0		
	2695 MANI	1	0638	0640.2	5.5	2.2	1.1		
	1415 MANI	1	0638	0640.2	5.5	3.8	1.0		
	9100 GORK	1	0639.9	0640.1	1.7	9.8	4.9		
	8800 ATHN	1	0639.6	0639.9	2.7	7.6	3.0		
	2950 GORK	1	0639.8	0640	2	3.3			
	2695 ATHN	1	0639.6	0641.1	3.3	5.0	1.2		
	2000 TYKW	45	0639.5	0641.7	3	3.0	1.0		
	1420 CRON	3	0639.5	0640	3	2.0	1.0		
	1415 ATHN	1	0639.4	0641.4	5.4	4.8	1.4		
	1000 TYKW	41	0639.5	0640.5	3	14.0	2.0		
	950 GORK	46	0639.6	0639.6	2.4	11.0			
	950 GORK		0639.6	0640.3		14.3			
	606 MANI	40	0639	0639.7	4.5	238.0	30.7		
	260 ONDR	44	0728	0758.5	203	70.0			
	536 ONDR	8	0735	0735	.5	85.0			
	650 GORK	2	0739.9	0740	.5	10.5	5.2		
	606 MANI	40	0739.5	0740.3	2.1	47.0	4.1		
	536 ONDR	45	0739.3	0740	.5	145.0			
	100 GORK	41	0757.6	0758.7	1.6	80.0			
	100 GORK		0757.6	0759.1		25.0			
	237 TRST	41	0758.4	0758.6	.9	310.0			
	200 GORK	6	0758.4	0758.6	.4	200.0	100.0		
	536 ONDR	8	0803	0803	.5	70.0			
	30 UPIC	45	0819	0821	5				
	8800 MANI	3	0848.2	0848.8	1.9	21.2	2.1		
	4995 MANI	1	0848.2	0848.8	1.9	7.0	1.4		
	2695 MANI	1	0848.2	0848.7	1.9	3.4	1.1		
	1415 MANI	1	0848.2	0848.7	1.8	1.9	1.0		
	1415 ATHN	1	0908.9	0912	6.7	1.9	.5		
	8800 ATHN	1	0911.6	0912.3	1.1	7.6	3.0		
	2695 ATHN	1	0912.1	0913	2.6	1.2	.2		
	1420 CRON	3	0947	0948.5	3.5	5.0	2.0		
	9500 BERL	1	1006	1006.7	2.2	7.0	2.4		
	8800 ATHN	1	1006.6	1006.8	1.2	4.9	1.6		
	4995 CANR	3	1006	1007	2	8.0	3.0		
	3000 BERL	1	1006	1006.9	2.5	2.2	1.0		
	2695 ATHN	1	1006.3	1006.7	1.3	2.5	.7		
	808 ONDR	45	1006	1006	1.5	65.0			
	650 GORK	4	1006.2	1006.6	1.1	31.0	6.2		
	536 ONDR	45	1006 E	1006.5	1.5	50.0			
	408 TRST	5	1006.3	1006.3	.1	14.0			
	30 UPIC	45	1028	1041.5	16				
	408 TRST	42	1153.2	1157	10.7	240.0D			
	9285 ARCE	21	1155.1	1158.6	22				
	8800 ATHN	3	1155.6	1157.3	4.8	42.1	11.3		
	606 SGMR	41	1155.5	1158.3	6	180.0	30.0		
	536 ONDR	45	1155.5	1158	4	150.0			
	510 POTS	40	1155.5	1157	3	40.0	5.0		
	410 SGMR	48	1155.5	1157.1	8.9	600.0	60.0		
	260 ONDR	45	1155	1157	4	100.0			
	245 SGMR	6	1155.5	1157.2	5	47.5	5.0		
	237 TRST	42	1155.7	1157.1	3	120.0			
	15400 SGMR	4	1156	1157.1	2.2	48.7	10.0		
	10500 BERN	8	1156.8	1157.1	2	72.0			
	9500 BERL	4	1156	1157.6	2.5	4.0			
	4995 CANR	45	1156.5	1157.5	3	15.0	4.0		
	2830 ARCE	1	1156.8	1157.1	1.2				
	2695 ATHN	1	1156.7	1157.3	1.7	2.5	.7		
	2695 CANR	45	1156	1156.5	2	8.0	2.0		
	2695 SGMR	2	1156.8	1157.1	2.4	4.2	1.5		
	1415 ATHN	1	1156.8	1157.1	1.9	3.5	1.0		
	808 ONDR	45	1156	1156.5	2.5	65.0			
	9285 ARCE	3	1157	1157.2	1.2				
	8800 SGMR	4	1157	1157.2	2.5	39.8	9.0		
	4995 SGMR	2	1157	1157.2	1.9	9.9	2.0		
	3000 BERL	3	1157.7	1157.7	1.5	6.7			
	1500 BERL	1	1157	1157.8	2	3.7			
	1420 ARCE	1	1157.1	1157.2	1.2				
	1415 SGMR	2	1157	1157.2	2.3	3.3	1.0		
	113 POTS	40	1157	1157.2	1.6	200.0	20.0		
	1420 CANR	45	1158.5	1159	2.5	4.0	1.0		
	2800 OTTA	20	1220	1250	220	2.6	1.3		
	237 TRST	41	1551.2	1551.4	.4	79.0			
	18 MCMA	6	1731	1733	2			2	
	8800 SGMR	1	1900.5	1900.7	1.8	6.9	3.4		
	4995 SGMR	1	1900.6	1900.7	1	6.5	3.2		
	2800 OTTA	1	1900.2	1900.5	1	6.8	2.3		
	2700 PENN	3	1900.3	1900.3		12.0			
	2695 SGMR	1	1900.4	1900.7	1.8	6.0	3.0		
	18 MCMA	42	1944	2010	34			2	
	2800 OTTA	21	2220	2225	30	1.8	0.9		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	3750	TYKW	45	2223	2223.6	3	3.0	1.0		
	2800	OTTA	1	2224.5	2225	1	1.4	0.7		
	606	MANI	40	2224.8	2230.2	17.6	68.0	5.3		
	8800	MANI	40	2225.8	2227.3U	19	680.0U	193.0U		RFI
	4995	MANI	22	2228	2237	16.8	13.9	2.8		
	2695	MANI	22	2228	2237	14.4	10.2	2.3		
	1415	MANI	22	2228	2236.8	13.2	7.1	1.0		
25	2695	PENT	1	0032	0033	4	1.6	0.8		
	4995	CRON	8	0038.5	0041.5	6.5	90.0	33.0		
	9400	TYKW	45	0039	0041.7	7	380.0	65.0		
	8800	MANI	4	0039	0042.1	9.6	360.0	52.0		
	4995	MANI	4	0039	0041.7	9.8	147.0	34.8		
	3750	TYKW	3	0039	0041.7	7	116.0	24.0		
	2695	PENT	3	0039.2	0041.8	7	114.0	24.0		
	2695	CRON	8	0039.5	0042	7.5	90.0	29.0		
	1420	CRON	8	0039.5	0041.5	6	54.0	18.0		
	2695	MANI	4	0040.3	0041.9	7.5	100.0	17.0		
	2000	TYKW	3	0040	0041.8	7	94.0	19.0		
	1415	MANI	4	0040.3	0041.9	6.8	59.0	15.3		
	1000	TYKW	3	0040	0041.9	7	30.0	7.0		
	606	MANI	4	0040.9	0041.7	7.5	10.6	1.3		
	9400	TYKW	29	0046		15	8.0	4.0		
	4995	CRON	8	0454.5	0457.5	5.5	60.0	26.0		
	1420	CRON	45	0455	0457.5	5	19.0	5.0		
	1000	TYKW	45	0455.5	0456	4.5	140.0	10.0		
	9400	TYKW	3	0456	0457.8	5	200.0	40.0		
	9100	GORK	3	0456.3	0458.1	4.4	196.0	40.0		
	8800	ATHN	4	0456.2	0458.1	4.6	270.0	54.7		
	8800	MANI	4	0456.2	0458	4.6	196.0	32.3		
	4995	ATHN	4	0456	0458.1	4.8	91.0	27.3		
	4995	MANI	4	0456	0458.1	9.2	99.0	16.8		
	3750	TYKW	45	0456	0457.9	4	60.0	20.0		
	2695	ATHN	4	0456.2	0458.2	4.6	40.5	12.7		
	2695	MANI	4	0456	0458.1	7.4	45.9	9.0		
	2695	CRON	45	0456	0458.5	5	27.0	8.0		
	2000	TYKW	45	0456	0458	4	31.0	10.0		
	1415	ATHN	4	0456	0458.2	4.7	16.0	5.0		
	1415	MANI	4	0456.1	0458.1	6.3	18.0	6.0		
	606	MANI	1	0457.2	0458.1	4.6	4.1	1.0		
	950	GORK		0458.5E		5.2U	15.0U			
	650	GORK	1	0458.5E	0501	4.4U	4.8	2.4		
	2950	GORK	1	0459.3E	0500	1 E	5.7	3.3		
	3750	TYKW	29	0500		20	2.0	1.0		
	9400	TYKW	29	0501		20	6.0	3.0		
	260	ONDR	45	0755	0801.5	15	25.0			
	808	ONDR	45	0833	0833.5	17.5	60.0			
	2830	ARCE	20	0849.4	0920.1	101				
	1420	CRON	3	0912.5	0915	5	9.0	3.0		
	10500	BERN	45	0913.5	0915.3	7				
	9500	BERL	4	0913.5	0915.4	22	62.0	8.3		
	4995	CANR	45	0913.5	0916	8	44.0	15.0		
	4995	CRON	45	0913	0915.5	5	31.0	11.0		
	3000	BERL	4	0913.5	0915.5	13	22.0	5.8		
	2830	ARCE	4	0913.9	0915.6	5				
	2695	CRON	45	0913.5	0915.5	5	33.0	6.0		
	2695	CANR	45	0913	0915	5.5	24.0	8.0		
	9285	ARCE	46	0914	0915.5	2.2				
	9285	ARCE		0914	0914.6	1				
	9100	GORK	46	0914.6	0914.8	3.4	54.0	21.0		
	9100	GORK		0914.6	0915.5		77.0			
	8800	ATHN	4	0914.4	0915.6	10.3	63.8	21.3		
	8800	MANI	4	0914.2	0915.5	4.8	87.0	20.6		
	4995	MANI	4	0914.2	0916	4.8	59.0	16.8		
	2950	GORK	46	0914.1	0914.7	6.8	15.5	8.1		
	2950	GORK		0914.1	0915.8		31.0			
	2695	ATHN	4	0914.4	0915.8	7	15.2	5.1		
	2695	MANI	4	0914.2	0916	4.3	20.2	3.4		
	1500	BERL	4	0914	0915	5	15.0	4.0		
	1420	ARCE	46	0914	0915	6				
	1415	ATHN	4	0914.4	0915	5.6	20.0	6.0		
	1415	MANI	4	0914.2	0915.1	4.5	19.0	3.0		
	950	GORK	4	0914.5	0915.1	4.3	23.0	10.0		
	930	BORD	45	0914	0915.1	3	27.0	4.0		
	808	ONDR	45	0914.5	0915.5	2	60.0			
	9285	ARCE		0915	0915.5	1.2				
	1420	CANR	45	0915	0916.5	6.5	14.0	3.0		
	9285	ARCE	29	0916.2		32				
	260	ONDR	45	1011	1021	41	65.0			
	200	GORK	6	1018.9	1019.4	.6	100.0	30.0		
	100	GORK	6	1130	1130.2	.3	30.0	15.0		
	100	GORK	6	1131.8	1131.8	.2	40.0	20.0		
	930	BORD	1	1150	1150.4	1	11.0	1.0		
	7000	SAOP	22	1235 U		62 E	5.9			
	260	ONDR	45	1415	1416.3	5.5	20.0			
	2695	CANR	3	1500	1501	3	2.0	1.0		
	9400	HUAN	20	1610.5	1629.3	61.2	9.4	4.4		
	2695	BOUL	3	1615	1618	5.5	4.0	1.0		
	1420	BOUL	3	1615	1618	7.5	3.0	1.0		
	4995	SGMR	1	1616.5	1617.8	4.4	4.8	1.2		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2800	OTTA	1	1616	1617.8	4	2.0	1.0		
	2700	PENN	1	1616.8	1617.7	3.7	5.3	1.8		
	2695	CANR	3	1616	1618	2.5	3.0	1.0		
	960	PENN	1	1616.9	1617.3	2	2.1	0.7		
	4995	CANR	3	1617	1618.5	3.5	6.0	2.0		
	4995	BOUL	3	1617	1618.5	2.5	5.0	2.0		
	2695	SGMR	1	1617	1617.8	2	3.6	.9		
	2695	PENT	2	2356	2358.5	4.5	3.6	1.8		
	2695	CRON	45	2357	2359	2.5	4.0	1.0		
	4995	CRON	45	2358.5	0001	3.5	11.0	3.0		
26	260	ONDR	41	0730	0849	210	23.0			
	930	BORD	1	0740	0740.3	1	12.0	1.0		
	2830	ARCE	1	1244.9	1245.6	1.5				
	1420	ARCE	40	1245.2	1245.7	4.8				
	2800	OTTA	21	1900	2007	260	7.8	3.0		
	2700	PENN	3	1916	1919.3	8.4	11.1	3.4		
	960	PENN	41	1916.2	1916.3	.6	7.8			
	606	SGMR	40	1916.1	1916.4	4.9	288.0	96.0		
	4995	BOUL	3	1917.5	1919	2.5	13.0	5.0		
	2800	OTTA	21	1917	1921	10	1.6	0.8		
	2695	SGMR	2	1917	1919.3	9.6	8.2	2.1		
	10700	PENN	1	1918.8	1919.2	4.8	9.9	2.5		
	9400	HUAN	42	1918.8	1919.2	12	23.2	5.6		
	8800	SGMR	4	1918.8	1919.3	4	16.7	4.2		
	4995	SGMR	4	1918.5	1919.1	4.3	11.8	2.9		
	2800	OTTA	2	1918	1919	3.5	5.4	2.0		
	2695	BOUL	3	1918.5	1919.5	5	7.0	2.0		
	1420	BOUL	45	1918	1919.5	6	5.0	1.0		
	1415	SGMR	1	1918.5	1919.4	6.1	5.9	1.5		
	960	PENN	1	1918.2	1919.4	8.4	3.9	2.6		
	15400	SGMR	2	1919	1919.4	1.1	6.3	1.6		
	410	SGMR	6	1919	1919.2	1.3	7.9	2.0		
	2700	PENN	47	1924.6	1932.1	10	1045.0D	76.0D		
	245	SGMR	43	1936.2	2033.4	201.8D	45.1			
	960	PENN	24	1943	2006.7		1.6			
	10700	PENN	20	1944.6	2005.3	91.4	9.9	5.0		
	2700	PENN	20	1946.1	2005.4	84.3	8.8	4.4		
	100	HIRA	45	2156.5	2156.8	1	80.0	20.0		
	100	HIRA	45	2206.4	2207.2	2	100.0	50.0		
27	260	ONDR	41	0700	0855.5	120 D	30.0			
	225	HARS	45	0853.5	0854	1.5	80.0	25.0		
	2695	CANR	8	0920	0922	3.5	17.0	5.0		
	3000	BERL	4	0921	0922.8	5.5	6.9	1.5		
	2950	GORK	20	0921	0922.9	4.4	7.5	2.5		
	2695	CRON	8	0921.5	0922	1	14.0	5 .0		
	1500	BERL	2	0922	0922.5	8	2.5	0.3		
	7000	SAOP	22	1237 U		54 E	4.0			
	2695	CANR	3	1441.5	1443	4	6.0	2.0		
	4995	CANR	3	1442.5	1443.5	1.5	6.0	2.0		
	3000	BERL	2	1442.7	1443.5	2.3	3.5	1.0		
	2800	OTTA	1	1442.8	1444	3	3.4	1.6		
	2700	PENN	1	1442.9	1444	2.7	6.2	2.1		
	4995	SGMR	1	1443.4	1444	1.7	2.1	1.5		
	2695	ATHN	1	1443.7	1444.1	1.2	2.3	.9		
	2695	SGMR	1	1443	1443.8	2.7	4.4	2.2		
	2695	BOUL	3	1443.5	1444	2	4.0	2.0		
	1500	BERL	2	1443	1443.8	5	2.8	1.0		
	1420	BOUL	3	1443.5	1444	1.5	3.0	1.0		
	1415	SGMR	1	1443.6	1444	1.4	2.4	1.2		
	1415	ATHN	1	1443.6	1444.1	2.6	3.2	1.1		
	960	PENN	1	1443.4	1443.9	2.3	3.0	1.3		
	606	SGMR	1	1443.5	1444.3	1.7	1.3	.6		
	23	POTS	3	1443.6	1444.2	2.1	25000.0	8000.0		
	1420	CANR	3	1444	1445	2	3.0	1.0		
	18	MCMA	6	1445	1446	3			2	
	2800	OTTA	20	1640	1715	70	1.6	0.8		
	2800	OTTA	2	2125.8	2126	2	7.6	2.6		
	2700	PENN		2125.7	2125.9	2.6	29.0	4.4		
	18	BOUL	6	2125	2127	3			1	
	2695	BOUL	45	2126	2126.5	2.5	16.0	6.0		
	1420	BOUL	3	2126	2126.5	3	1.0			
	2695	PENT	24	2240		70	2.7			
	100	HIRA	5	2315	2315	.5	60.0	25.0		
28	245	BOUL	42	0000	0043 D	51 D			1	
	8800	MANI	1	0103.8	0105	5.2	5.9	2.0		
	4995	CRON	45	0103.5	0104.5	3.5	6.0	2.0		
	4995	MANI	1	0103.8	0105	5.2	9.7	2.8		
	3750	TYKW	45	0103	0104.9	5	10.0	6.0		
	2695	MANI	4	0103.8	0104.9	5.7	13.9	3.5		
	1420	CRON	45	0103	0107	5	14.0	4.0		
	9400	TYKW	20	0104	0105	35	4.0	2.0		
	2695	CRON	45	0104	0105	3.5	10.0	3.0		
	2695	PENT	45	0104	0104.9	4	12.4	4.2		
	2000	TYKW	45	0104	0106.5	4	11.0	4.0		
	1000	TYKW	45	0104	0104.5	4	13 .0	3.0		
	3750	TYKW	29	0108		30	4.0	2.0		
	100	HIRA	45	0108.5	0111.4	6.5	130.0	60.0		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	100	HIRA	27	0222.2	0505	285	80.0	25.0		
	9400	TYKW	1	0254	0255	3	3.0	1.0		
	3750	TYKW	20	0254	0256	60	2.0	1.0		
	3750	TYKW	3	0333.5	0334.2	6	10.0	1.0		
	3000	BERL	20	1030	1033.8	5	2.4			
	1500	BERL	2	1032.5	1034.2	3	3.3	1.5		
	1420	CANR	3	1034	1035.5	2.5	2.0	1.0		
	2800	OTTA	1	1451.8	1452	1	1.8	0.9		
	2700	PENN	24	1722.8	1853.5		10.3			
	2800	OTTA	21	1740	1850	235	4.8	2.6		
	245	SGMR	43	1745.6	1810.3	315.4D	33.0			
	960	PENN	41	1750.8	1752.2	4.6	12.3			
	2800	OTTA	1	1755.8	1756	.8	3.0	1.0		
	2700	PENN	1	1755.6	1756	1	6.9	2.3		
	960	PENN	1	1759.6	1800.1	1.5	2.0	0.6		
	18	BOUL	41	1805	1808	4			1	
	18	MCMA	6	1808	1810	3			2	
29	100	HIRA	45	0228.5	0228.8	1	70.0	20.0		
	260	ONDR	41	0730	1228.5	298.5	180.0			
	113	POTS	45	0932.2	0932.6	.8	250.0	50.0		
	237	TRST	45	0959.9	1000	.2D	1400.0			
	234	POTS	45	0959.9	1000	1.4	800.0	160.0		
	113	POTS	45	0959.8	1000.1	1.2	3500.0	1200.0		
	30	UPIC		0959.5		2.5				
	23	POTS	45	1000	1000.3	1.3	1000.0	200.0		
	245	SGMR	44	1035 E	1228.9	747 D	340.0			
	8800	ATHN	3	1124.2	1127.2	7.9	20.8	6.9		
	237	TRST	45	1226.4	1226.5	.1	1800.0	580.0		
	234	POTS	41	1226.5	1226.5	2.6	700.0	20.0		
	113	POTS	41	1226.5	1226.5	3.2	7000.0	700.0		
	237	TRST	45	1228.9	1229	.3	990.0	330.0		
	30	UPIC	5	1229.5	1229.5	.5				
	30	UPIC	45	1402.5	1403.5	1.5				
	30	UPIC	5	1424	1424.5	1				
	18	MCMA	6	1621	1622	2			2	
	2800	OTTA	24	2100		100	4.0			
	2695	PENT	20	2250	2255	10	3.4	1.7		
	1420	BOUL	3	2250	2254.5	8.5	4.0	1.0		
	2695	BOUL	3	2251.5	2255	7.5	4.0	2.0		
30	2695	PENT	1	0013	0013.5	2	1.0	0.5		
	1420	CRON	3	0413.5	0414.5	1.5	2.0	1.0		
	100	HIRA	5	0414	0414.3	.6	120.0	30.0		
	237	TRST	45	0630.8	0631	.3	150.0	36.0		
	260	ONDR	44	0640	0712	480	175.0			
	245	SGMR	44	1033 E	1430	750 D	220.0			
	237	TRST	42	0642.4	0643.1	3.5	780.0			
	234	POTS	40	0642.4	0643.1	.7	350.0	4.0		
	113	POTS	41	0642.4	0642.5	2.5	2000.0	70.0		
	100	HIRA	45	0642.5	0642.6	1.5	75.0	30.0		
	3750	TYKW	20	0652	0700	60	4.0	2.0		
	9400	TYKW	20	0653	0700	60	4.0	2.0		
	2000	TYKW	20	0653	0701	40	4.0	2.0		
	1000	TYKW	20	0656	0701	12	3.0	1.0		
	237	TRST	45	0656.9	0657.1	.4	230.0	68.0		
	2695	CRON	8	0710.5	0711.5	2	10.0	3.0		
	9400	TYKW	3	0711.5	0712.2	1.5	22.0	4.0		
	8800	ATHN	3	0711.5	0712.3	4.1	11.6	3.3		
	8800	MANI	3	0711.3	0712.3	4.3	20.3	4.5		
	4995	CRON	8	0711	0712	1	15.0	5.0		
	4995	ATHN	3	0711.1	0712.3	3.2	11.2	3.7		
	4995	MANI	3	0711.3	0712.3	4.5	10.1	2.9		
	3750	TYKW	3	0711.5	0712.2	2	11.0	2.0		
	2695	ATHN	1	0711.5	0712.3	1.9	2.2	.7		
	2695	MANI	1	0711.8	0712.4	2	5.4	1.1		
	1420	CRON	45	0711.5	0712.5	4	6.0	2.0		
	1415	MANI	1	0711.8	0712.4	2.7	3.4	.9		
	1000	TYKW	1	0711	0712.3	7	5.0	2.0		
	606	MANI	1	0711	0715.6	6.3	6.2	.6		
	237	TRST	42	0711.5	0712.1	4	1700.0			
	2000	TYKW	1	0712	0712.3	2	3.0	1.0		
	1415	ATHN	1	0712	0712.3	4	4.2	1.6		
	536	ONDR	45	0712	0712	3.5	45.0			
	234	POTS	45	0712	0712.1	.4	1000.0	200.0		
	536	ONDR	45	0736	0738.5	4	60.0			
	237	TRST	42	0736.7	0738.7	3.3	720.0			
	234	POTS	45	0737.7	0738.7	1.4	350.0	4.0		
	113	POTS	45	0737.7	0738.8	2.5	1200.0	60.0		
	808	ONDR	45	0738	0738.5	2.5	65.0			
	100	HIRA	45	0738	0738.3	2	145.0	40.0		
	2695	MANI	1	0745.4	0745.7	1.3	4.3	1.1		
	1415	MANI	1	0745.4	0745.8	1.6	5.1	.9		
	606	MANI	8	0745.7	0745.8	.5	43.7	5.6		
	930	BORD	8	0833	0833.4	1	61.0	1.0		
	808	ONDR	8	0833.5	0833.5	.5	70.0			
	2695	MANI	1	0852.7	0853	2.1	3.2	1.1		
	1415	MANI	4	0852.7	0853	2.1	30.6	3.4		
	606	MANI	40	0852.7	0853	1.2	340.0	25.3		
	808	ONDR	45	0906.5	0907	1.5	65.0			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MARCH 1973

MAR. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
30	237 TRST	45	0938	0938.2	.6	760.0	190.0		
	234 POTS	45	0938.1	0938.2	.2	200.0	30.0		
	113 POTS	41	0938	0938.1	2.3	200.0	10.0		
	536 ONDR	45	1058.5	1058.5	1.5	45.0			
	408 TRST	41	1058.6	1058.7	1	92.0D			
	536 ONDR	45	1136	1136	1	45.0			
	408 TRST	41	1136.5	1136.7	.5	130.0D			
	9285 ARCE	22	1138.9	1146.5	10				
	2800 OTTA	40	1140	1141	7	3.6			
	2695 SGMR	45	1142.6	1144.8	4.2	3.6	1.0		
	2695 SGMR	45		1145.9		4.5			
	2695 CANR	45	1142.5	1146	4	4.0	2.0		
	8800 ATHN	2	1143.6	1146.1	3.6	6.9	2.6		
	8800 SGMR	45	1143.8	1143.9	3.8	5.1	2.0		
	8800 SGMR	45		1145.9		10.2			
	4995 SGMR	45	1143.2	1143.9	3.9	6.2	2.5		
	4995 SGMR	45		1145.9		11.9			
	3000 BERL	41	1143	1146.1	4.6	3.8			
	2695 ATHN	1	1143.7	1146.1	3.2	2.2	.7		
	1500 BERL	41	1143.5	1143.8	3	2.1			
	1415 ATHN	2	1143.7	1146.1	3.3	2.2	.8		
	536 ONDR	3	1143.5	1143.5	1	110.0			
	408 TRST	42	1143.7	1143.9	5	93.0			
	113 POTS	40	1144.9	1148.6	4.2	700.0	35.0		
	9500 BERL	1	1145	1146	1.5	8.2			
	2830 ARCE	1	1146	1146.4	.8				
	1420 ARCE	1	1146.2	1146.5	1				
	113 POTS	45	1203.4	1203.4	.3	700.0	175.0		
	808 ONDR	45	1221	1224	3.5	65.0			
	113 POTS	41	1221.9	1224.1	8.3	600.0	12.0		
	3000 BERL	2	1223	1224	1.3	2.9			
	2800 OTTA	1	1223	1223.5	1.1	1.8	0.6		
	2695 ATHN	1	1223.5	1224.1	1.7	2.2	.9		
	2695 CANR	3	1223	1223.5	1.5	3.0	1.0		
	2695 SGMR	1	1223.4	1223.8	2.1	2.9	1.0		
	1500 BERL	2	1223	1224	2	2.8	1.1		
	1415 SGMR	1	1223.5	1224.1	2.5	2.4	.8		
	1415 ATHN	2	1223.3	1224.1	3.4	3.2	1.1		
	606 SGMR	1	1223.4	1224	2.1	9.4	2.4		
	536 ONDR	8	1223.5	1223.5	.5	45.0			
	410 SGMR	6	1223.8	1224.1	1.4	7.2	1.8		
	1420 CANR	3	1224.5	1225.5	1.5	3.0	1.0		
	113 POTS	45	1254.6	1254.7	.2	600.0	200.0		
	2800 OTTA	21	1320	1335	45	2.8	1.4		
	3000 BERL	22	1322.5	1332.5	23	4.3			
	2800 OTTA	40	1323.7	1324.8	2	3.2			
	1500 BERL	2	1323.5	1324.6	3	3.9			
	4995 CANR	3	1324	1325.5	2.5	3.0	1.0		
	808 ONDR	8	1324.5	1324.5	.5	70.0			
	2700 PENN	1	1330.5	1332.1	12	8.9	3.4		
	2800 OTTA	1	1331	1332.1	2	3.2	1.1		
	2800 OTTA	21	1420	1553	170	4.8	2.4		
	4995 CANR	45	1427.5	1428.5	2.5	6.0	2.0		
	2695 CANR	8	1430.5	1431.5	2	4.0	1.0		
	234 POTS	45	1438.5	1438.6	1 U	500.0	100.0		
	113 POTS	1	1438.5	1438.7	1 U	800.0	250.0		
	237 TRST	45	1439	1439.2	.5	990.0	300.0		
	225 HARS	1	1439	1439.5	1	40.0	10.0		
	9285 ARCE	20	1520.6	1529.2	15.5				
	237 TRST	42	1520.5	1527.2	7.5	850.0U			
	4995 BOUL	3	1526.5	1529.5	4	9.0	3.0		
	2695 CANR	45	1526	1529.5	4	31.0	10.0		
	1415 SGMR	4	1526.9	1527	4.1	66.3	30.0		
	1415 ATHN	4	1526 U	1529.7	4 U	10.8	3.2		
	960 PENN	45	1526.8	1526.9	4.4	60.0	3.8		
	930 BORD	45	1526	1526.9	5	137.0	3.0		
	606 SGMR	4	1526.9	1527.1	3.7	149.0	75.0		
	410 SGMR	6	1526.9	1527.1	3.5	72.0	35.0		
	245 SGMR	48	1526.9	1527.2	4.2	580.0	240.0		
	10700 PENN	1	1527.9	1529.9	5.2	4.6	1.8		
	4995 SGMR	2	1527.4	1528.9	9.2	7.8	2.0		
	2830 ARCE	45	1527.8	1529.6	3				
	2830 ARCE		1527.8	1528.5	1.5				
	2800 OTTA	46	1527	1529.8	4	19.0	4.8		
	2700 PENN	45	1527.1	1530.7	4.1	38.2	7.2		
	2695 ATHN	4	1527.4	1529.8	3.5	20.1	6.7		
	2695 SGMR	4	1527.1	1529.8	3.8	24.3	6.0		
	2695 BOUL	45	1527.5	1530.5	3.5	30.0	7.0		
	1420 BOUL	40	1527	1528	4.5	65.0	2.0		
	1420 ARCE	40	1527.7	1529.8	3				
	225 HARS	45	1527	1527.5	1.5	90.0	35.0		
	8800 SGMR	2	1528.5	1528.6	2.4	4.1	1.5		
	1420 CANR	40	1528	1528.5	4.5	47.0	6.0		
	2830 ARCE		1529.3	1529.6	1.5				
	410 SGMR	7	1611.7	1613.9	3.3	310.0	120.0		
	245 SGMR	48	1611.9	1613.9	3.2	905.0	360.0		
	237 TRST	42	1611.6	1613.9	3.1	2600.0			
	225 HARS	45	1611.5	1613.5	3.5	110.0	40.0		
	606 SGMR	3	1612.8	1614	1.8	12.1	4.5		
	2800 OTTA	1	1613.9	1614	1.5	1.6	0.8		

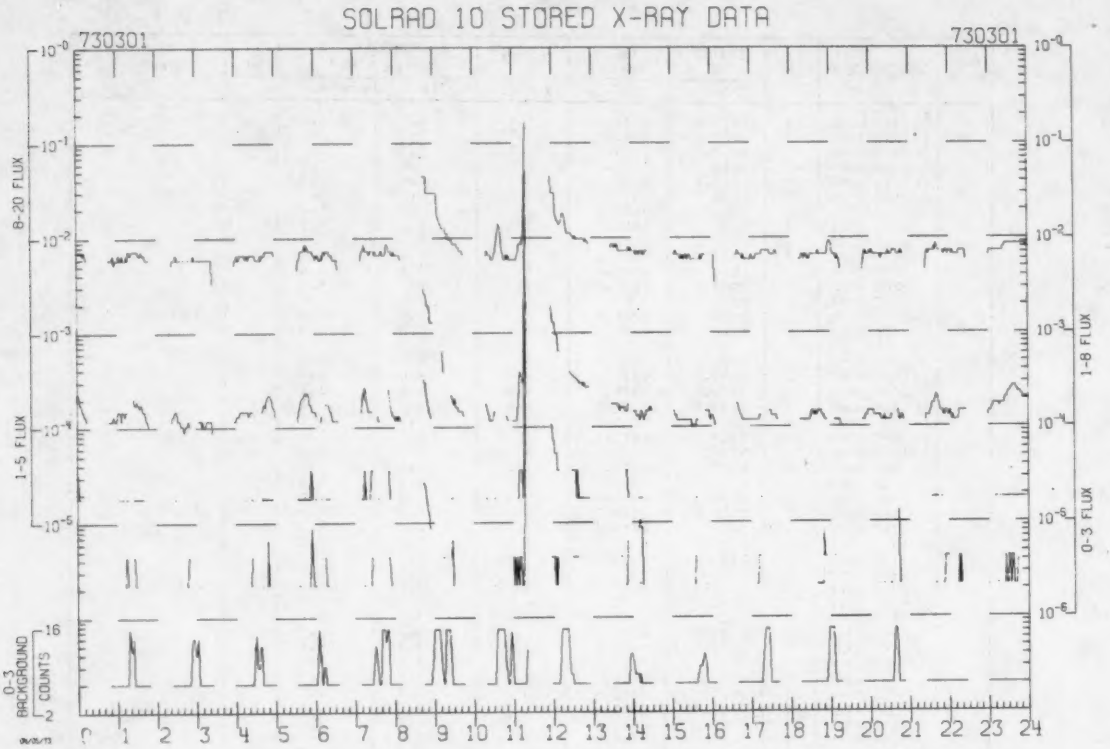
SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

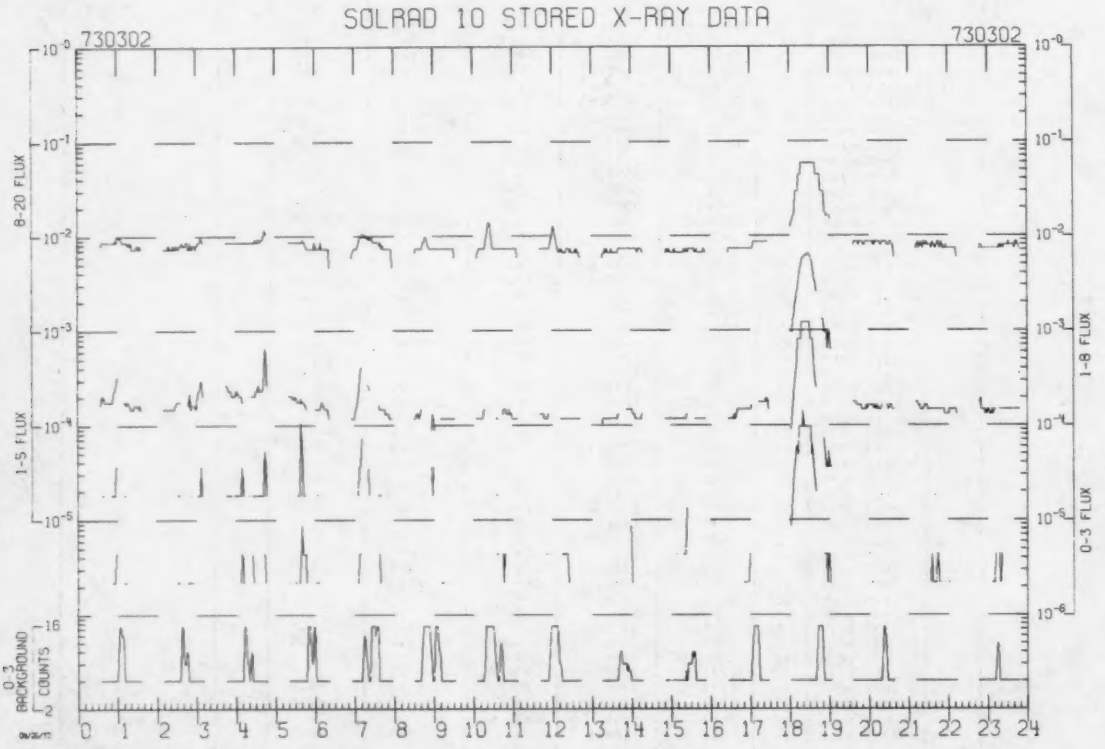
MARCH 1973

MAR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2700	PENN	1	1613.8	1614	.9	4.6	1.9		
	1415	SGMR	1	1613.5	1613.6	3.8	5.1	2.4		
	960	PENN	45	1613.2	1614.2	2.2	9.7	1.4		
	930	BORD	45	1613	1614.2	2	26.0	2.0		
	1420	CANR	8	1614.5	1614.5	1	4.0	1.0		
	1420	BOUL	8	1614	1614	1.5	5.0	2.0		
	2800	OTTA	1	1656	1656.3	1	.8	0.4		
	1420	BOUL	8	1656	1656.5	1	6.0	2.0		
	2800	OTTA	1	1807	1807.3	1	2.6	1.0		
	2695	BOUL	8	1807.5	1808	1	4.0	1.0		
	2800	OTTA	1	1845	1845.5	1	1.2	0.6		
	9400	HUAN	20	2000.8	2027.7	43.6	8.7	4.2		
	2800	OTTA	24	2200		5	1.0			
	2800	OTTA	2	2244.7	2244.9	1	1.2	0.6		
	2695	BOUL	8	2245	2245	1	4.0	1.0		
31	3750	TYKW	1	0111	0111.7	3	2.0	1.0		
	4995	MANI	2	0223.5	0224.1	4.6	4.4	1.5		
	2695	MANI	2	0223.5	0225.5	4.6	3.4	1.1		
	1415	MANI	2	0223.5	0225.5	4.6	2.7	.9		
	3750	TYKW	45	0224	0225.5	2	3.0	1.0		
	2000	TYKW	45	0224	0225.5	2	4.0	2.0		
	1000	TYKW	1	0224	0225.5	3	8.0	2.0		
	606	MANI	8	0225.4	0225.5	.6	28.8	1.3		
	3750	TYKW	1	0238	0239.2	3	2.0	1.0		
	3750	TYKW	1	0253.5	0254.1	5	2.0	1.0		
	100	HIRA	45	0318.8	0319.2	1	70.0	25.0		
	3750	TYKW	1	0319	0319.2	1	2.0	1.0		
	1000	TYKW	1	0319	0319.5	1	3.0	1.0		
	100	HIRA	5	0359.4	0359.5U	.6D	140.0	50.0		
	3750	TYKW	45	0420	0500	90	4.0	2.0		
	2000	TYKW	1	0437	0437.4	1	11.0	2.0		
	9400	TYKW	20	0450	0500	60	2.0	1.0		
	9400	TYKW	3	0511	0511.4	1.5	11.0	3.0		
	8800	ATHN	1	0511.4	0511.6	3.1	8.2	3.3		
	8800	MANI	1	0511.3	0511.6	2.2	8.8	4.4		
	4995	ATHN	1	0511.4	0511.6	2.5	4.6	1.8		
	4995	MANI	1	0511.3	0511.6	2.2	5.9	2.9		
	3750	TYKW	1	0511	0511.6	3	7.0	2.0		
	2695	ATHN	1	0511.4	0511.6	1.7	2.3	.7		
	2695	MANI	1	0511.3	0511.6	2.7	4.5	1.1		
	10500	BERN	1	0648.5	0648.6	1	17.0			
	9400	TYKW	3	0648	0648.7	2	18.0	4.0		
	8800	ATHN	1	0648.6	0648.8	1.3	8.2	3.3		
	8800	MANI	4	0648.4	0648.7	3.1	15.5	4.4		
	4995	MANI	1	0648.4	0648.7	3.1	8.8	2.9		
	3750	TYKW	3	0648	0648.7	4	12.0	3.0		
	2695	MANI	1	0648.4	0648.8	3.1	2.2	1.1		
	1415	MANI	1	0720.6	0720.8	1.2	1.8	.9		
	606	MANI	3	0720	0720.8	3.6	13.3	2.9		
	260	ONDR	45	0727	0748	33	40.0			
	536	ONDR	45	0742	0742	8	50.0			
	4995	CANR	3	0905	0907	4	7.0	2.0		
	3000	BERL	1	0905	0907.5	3.8	3.8	1.1		
	2695	CANR	3	0905.5	0907.5	4	4.0	1.0		
	1500	BERL	1	0906	0907.3	2.5	1.7			
	606	MANI	8	0906.7	0907	.5	24.4	5.8		
	536	ONDR	45	0906.5	0907	2.5	70.0			
	3000	BERL	22	1010	1018	26	3.2			
	1500	BERL	46	1023.5	1024.6	3.5	4.8	1.4		
	536	ONDR	45	1023.5	1024.5	3	75.0			
	536	ONDR	45	1030.5	1042.5	59.5	50.0			
	510	POTS	45	1030	1043	90	32.0	3.0		
	245	SGMR	44	1032 E	2004.1	752 D	76.8			
	234	POTS	45	1032.5	1045.5	96	23.0	7.0		
	808	ONDR	45	1034	1035	19	65.0			
	260	ONDR	45	1034	1047.5	85	85.0			
	113	POTS	45	1045	1051.5	15	5.0	2.0		
	260	ONDR	41	1200	1339.5	180	25.0			
	2800	OTTA	1	1207.5	1208	1.5	1.8	0.9		
	18	MCMA	6	1307	1309	2			1	
	2800	OTTA	24	1320		30	1.8			
	237	TRST	45	1339.3	1339.4	.4	110.0	22.0		
	536	ONDR	45	1340	1340	1	45.0			
	18	MCMA	6	1351	1359	5			1	
	18	MCMA	6	1436	1437	2			1	
	2800	OTTA	21	1620	1635	25	1.4	0.7		
	18	BOUL	6	1634	1636	2			1	
	2800	OTTA	1	1635	1635.5	2	.7	0.3		
	18	MCMA	6	1636	1637	3			2	
	1420	BOUL	8	1728	1728.5	1	3.0	1.0		
	410	SGMR	43	1824	2002.5	280 D	22.4			
	245	BOUL	42	1905	1910	15			1	
	245	BOUL	41	1929	1930	3			1	
	2800	OTTA	1	1949.5	1950.5	2	1.4	0.7		
	1420	BOUL	3	1949	1950.5	3.5	2.0	1.0		
	245	BOUL	42	2000	2004	54			2	
	2800	OTTA	32	2227	2235	20 D	-2.2			
	2695	PENT	32	2232	2238	20	-1.8	-0.9		
	245	BOUL	41	2242	2248	16			1	
	245	BOUL	42	2317	2356	42 D			2	
	3750	TYKW	45	2348	2348.6	6	3.0	1.0		

SOLAR X-RAYS MEASURED BY SATELLITE SOLRAD 10 - EXPLORER 44

MARCH 1973





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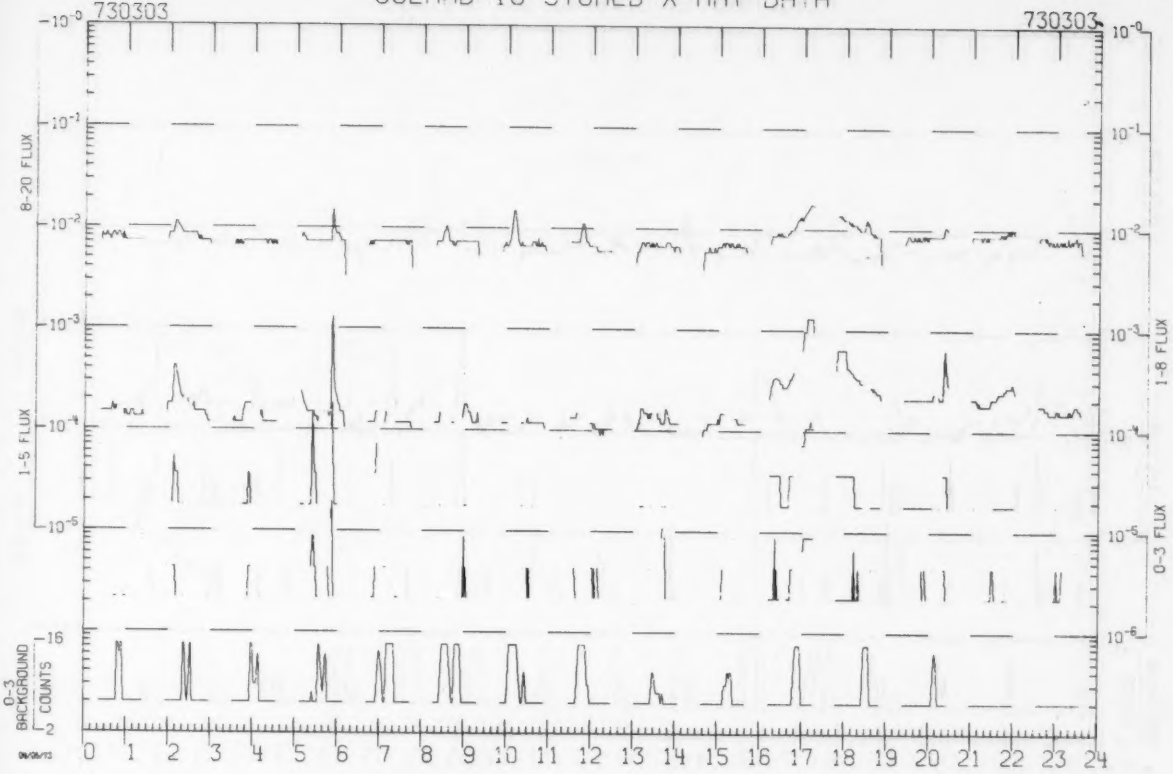

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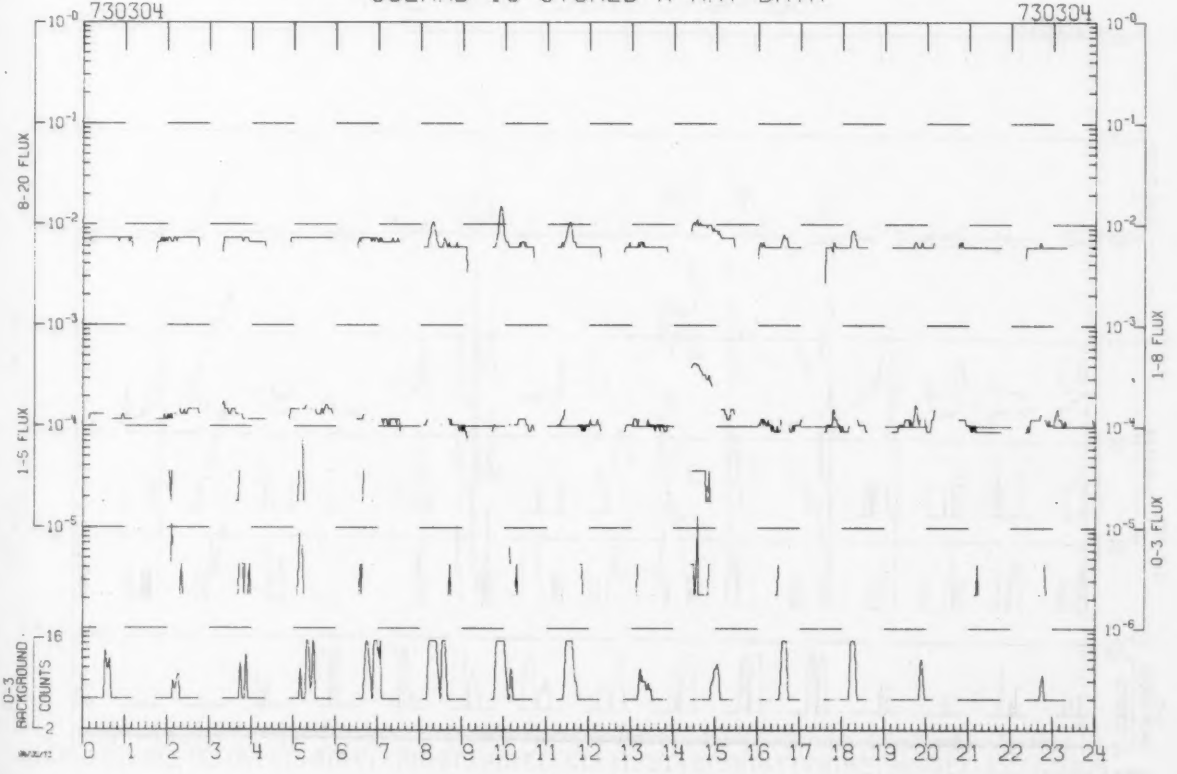

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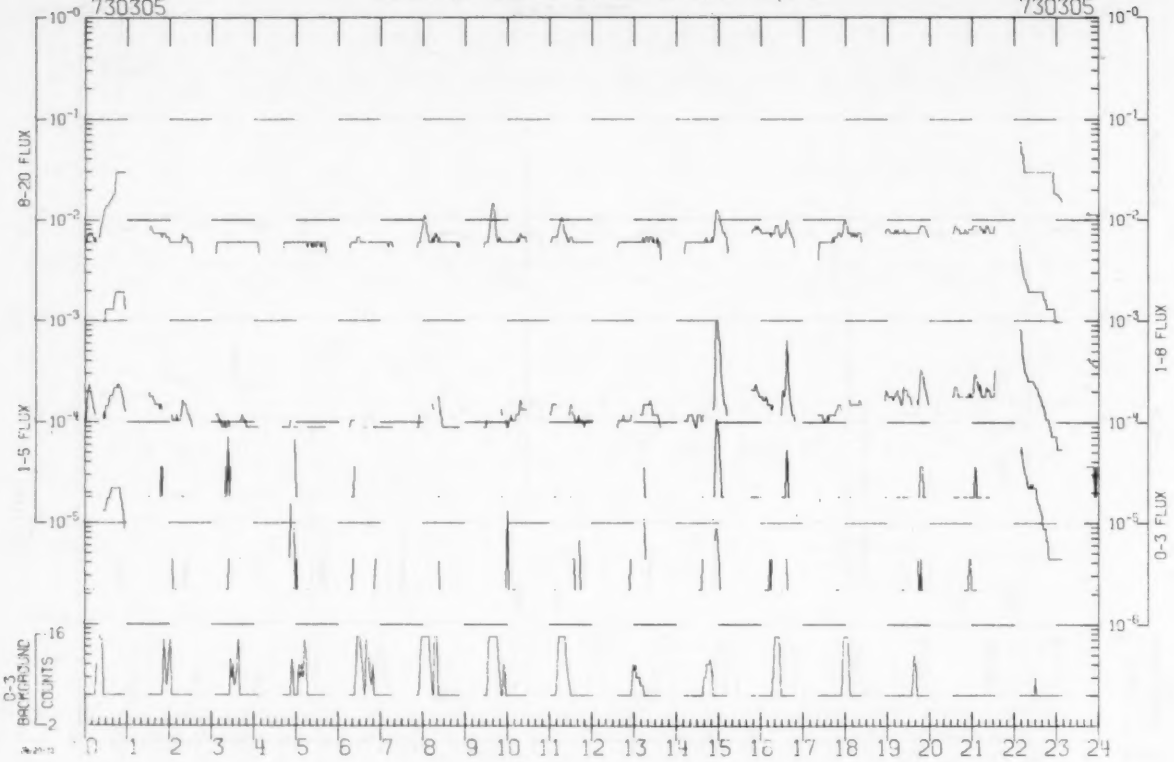

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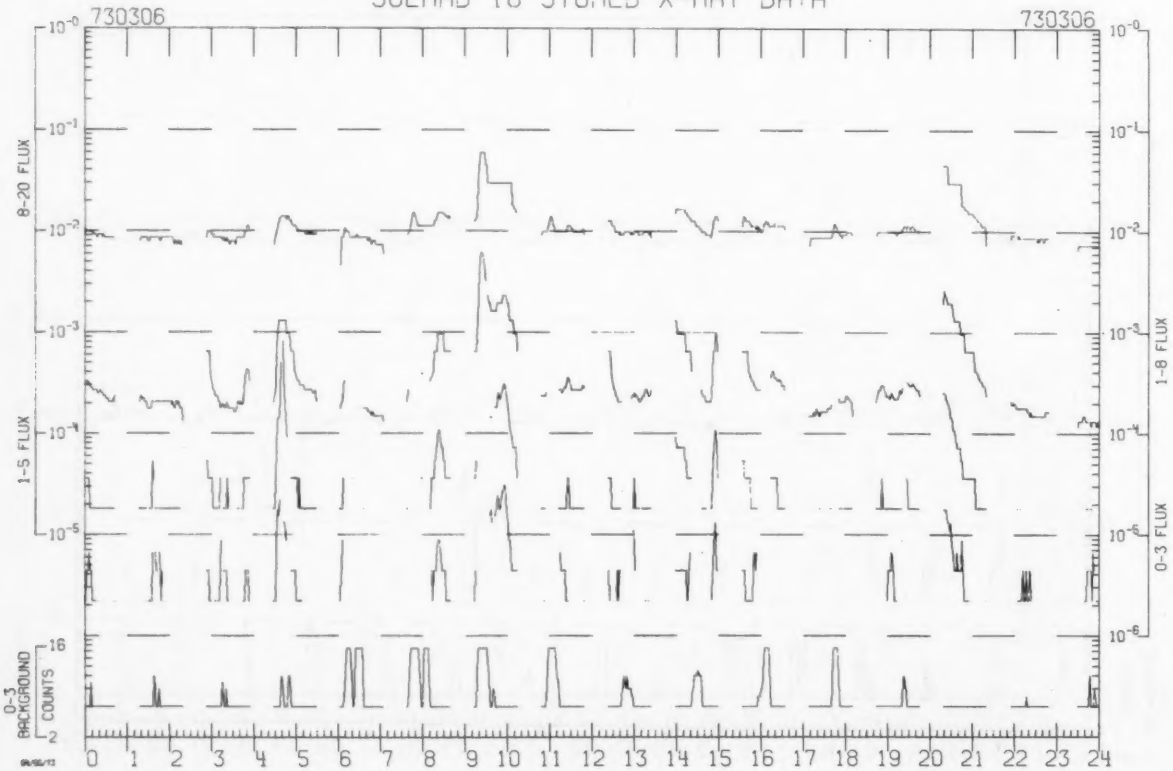

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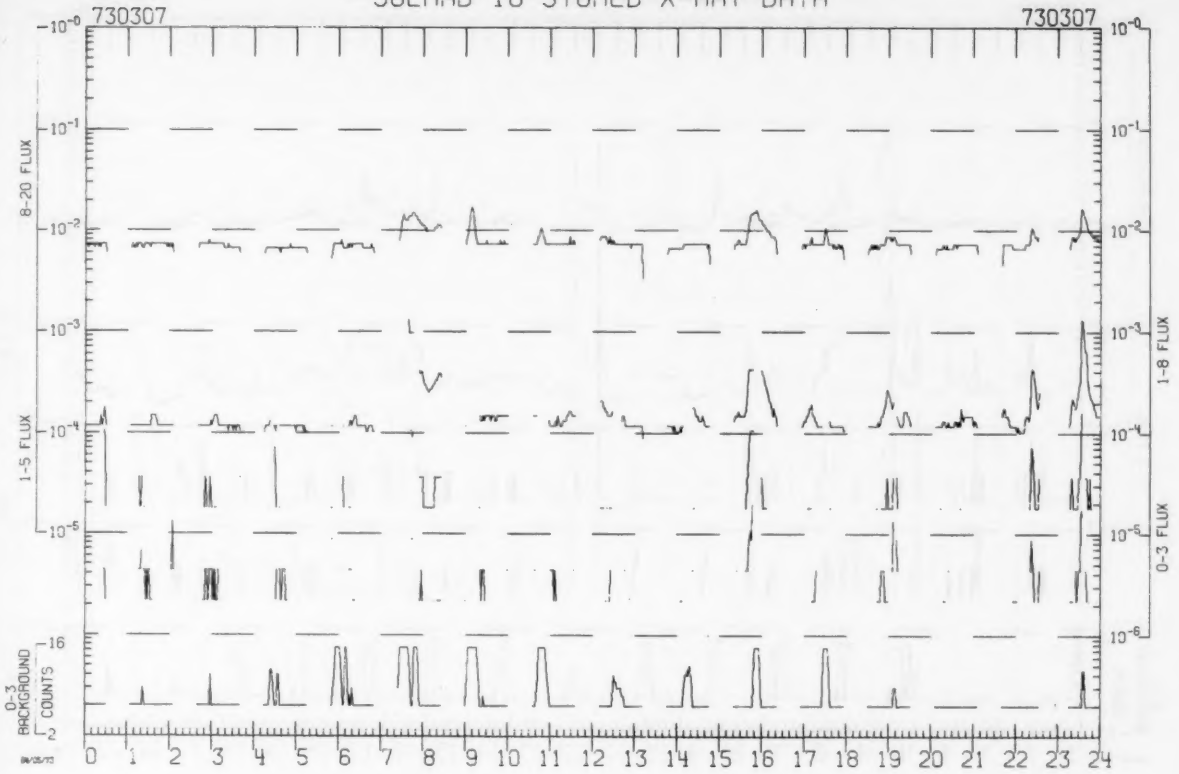

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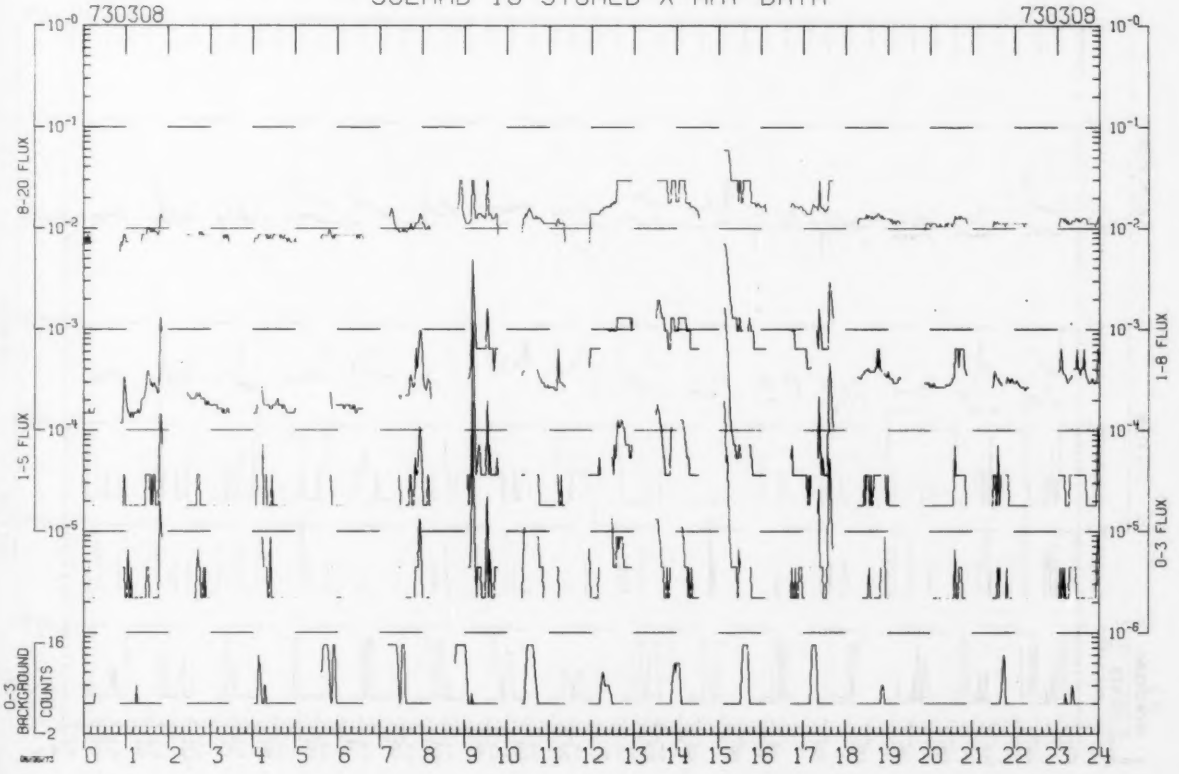

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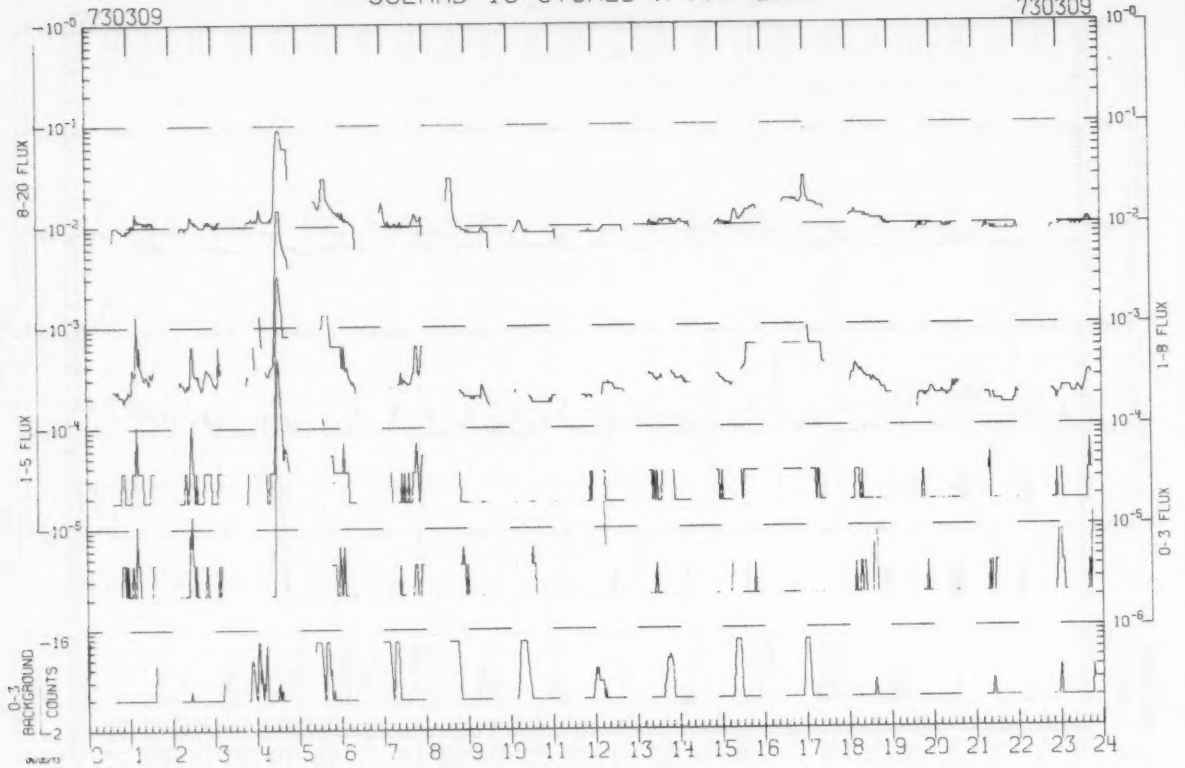

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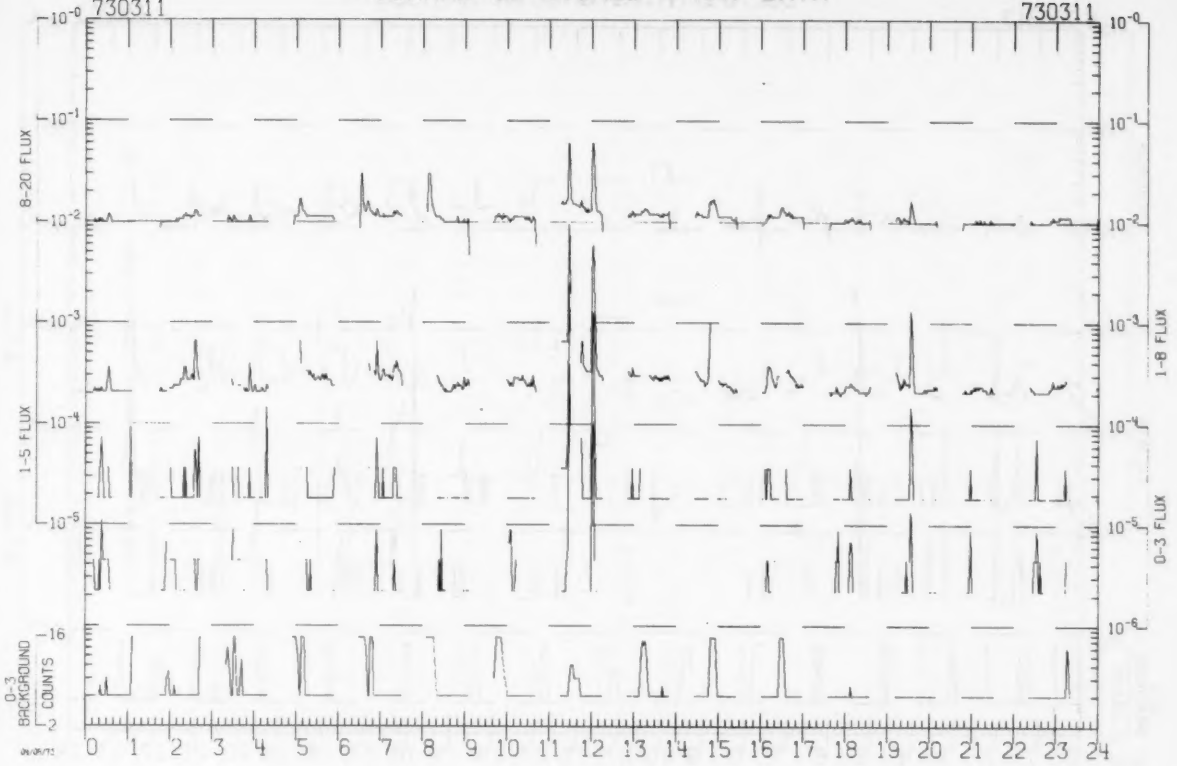

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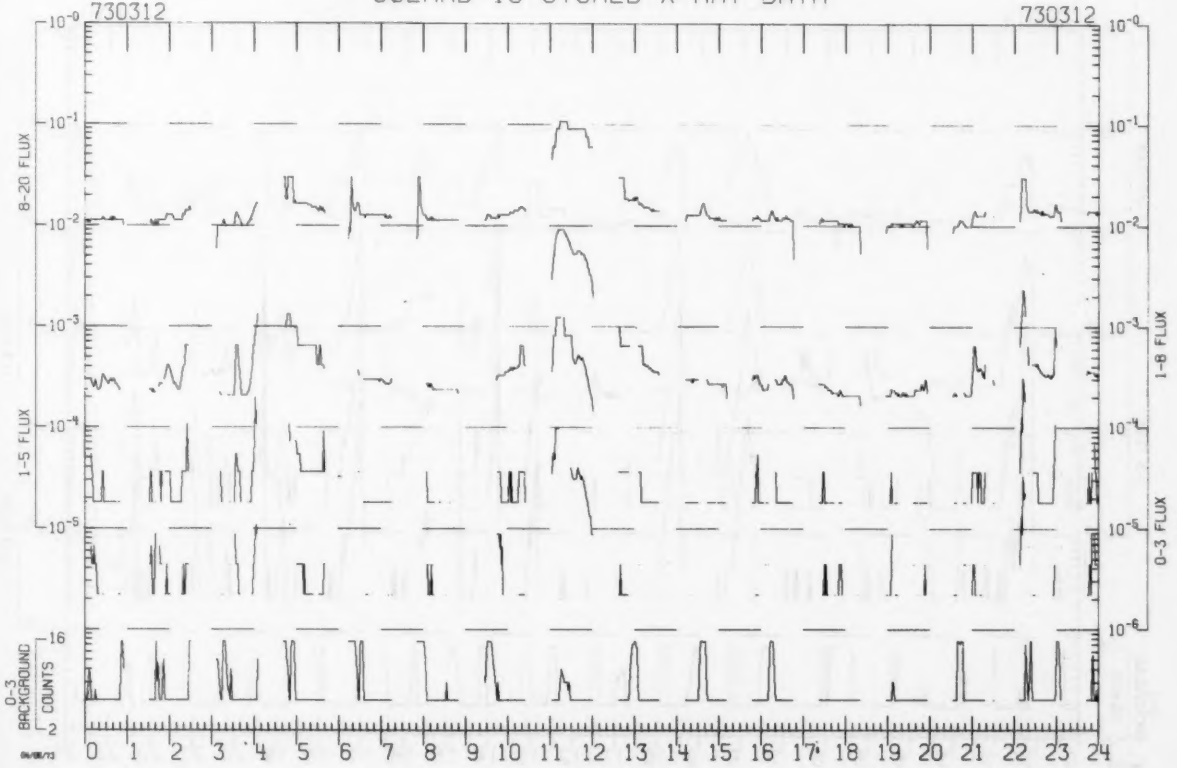

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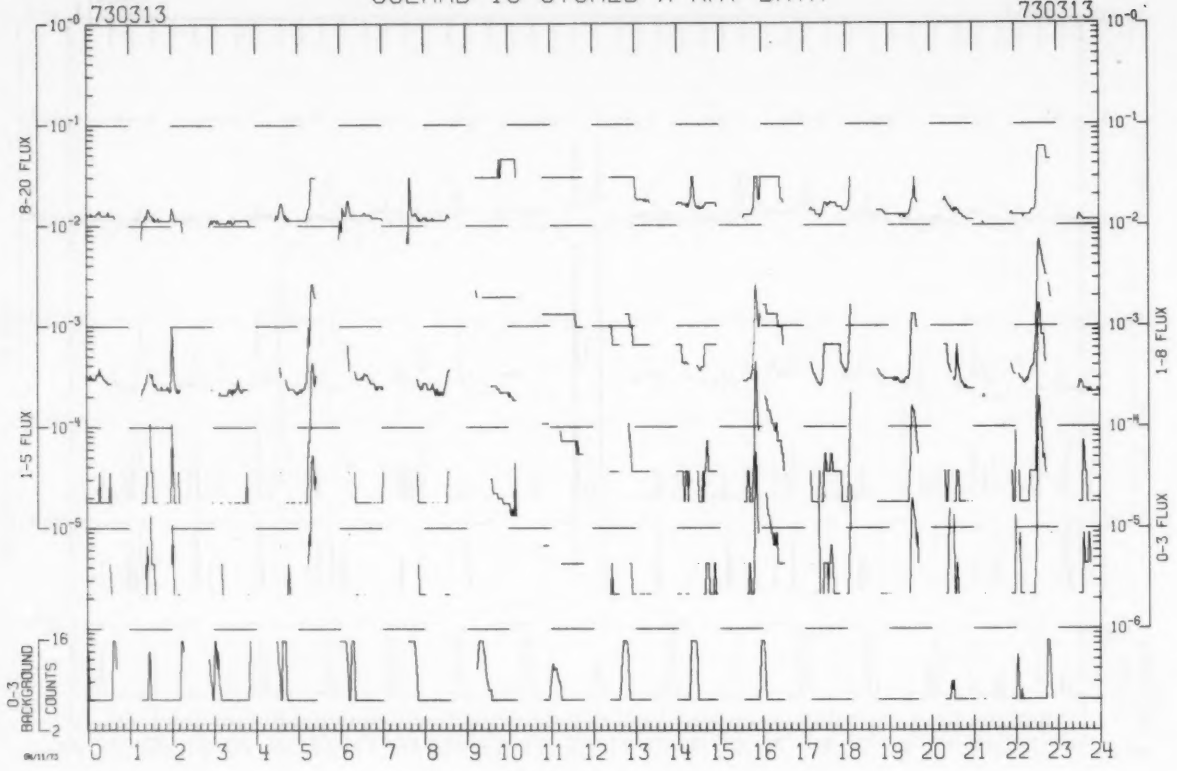

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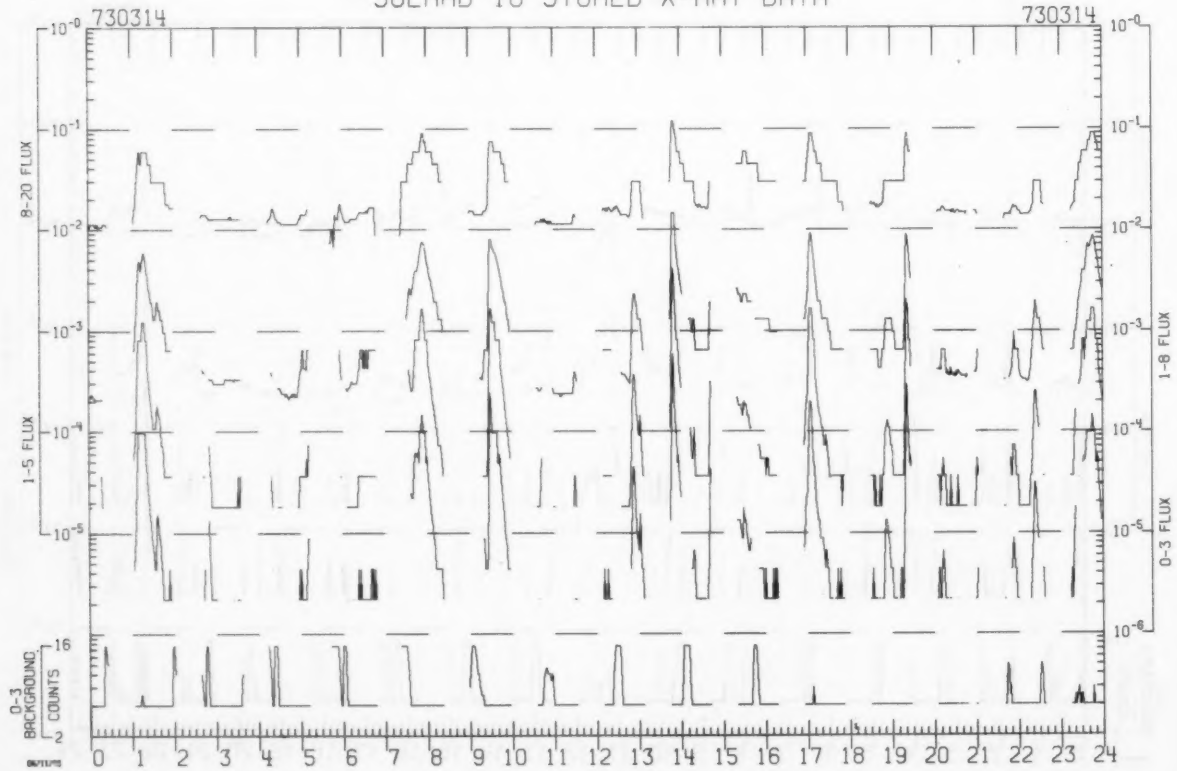

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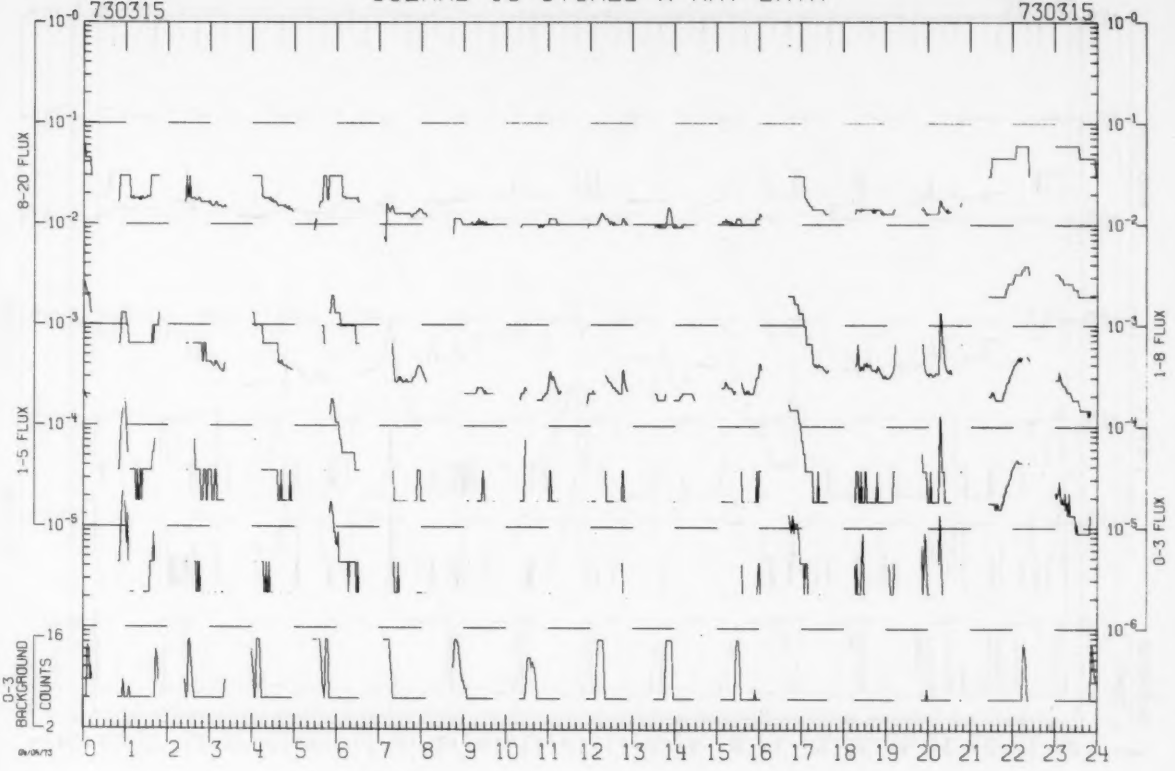

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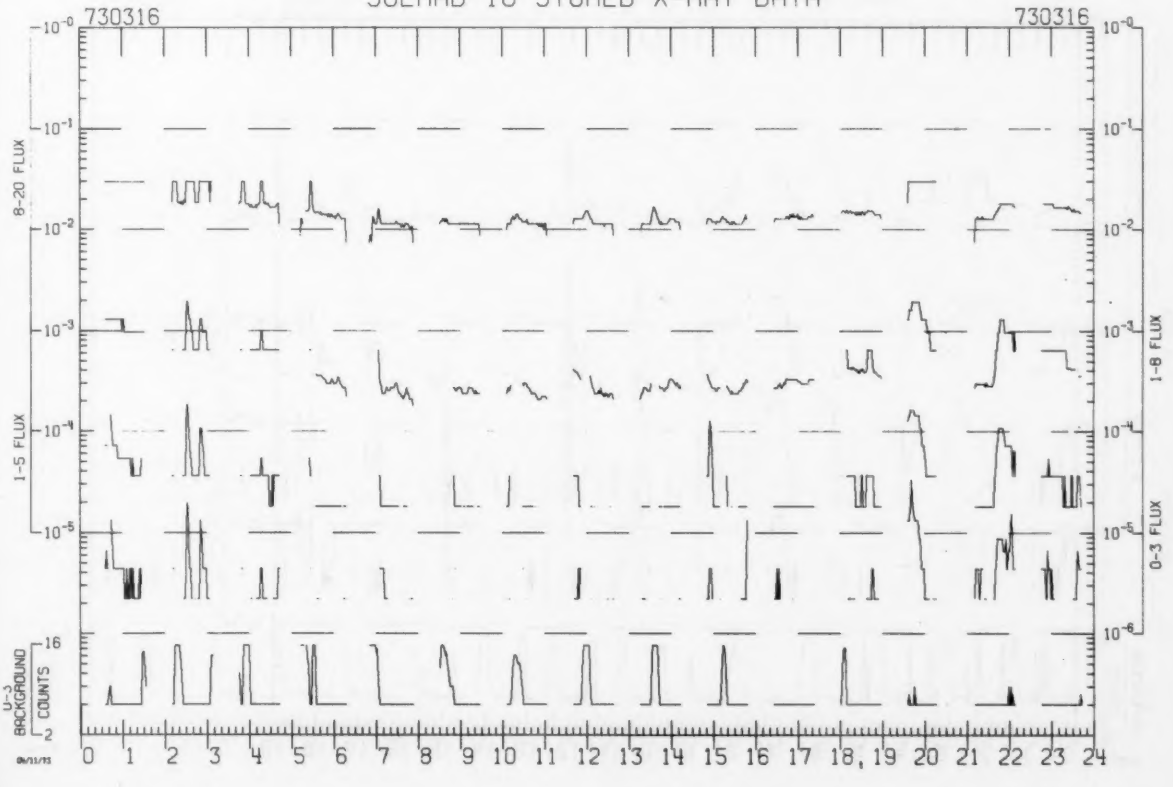

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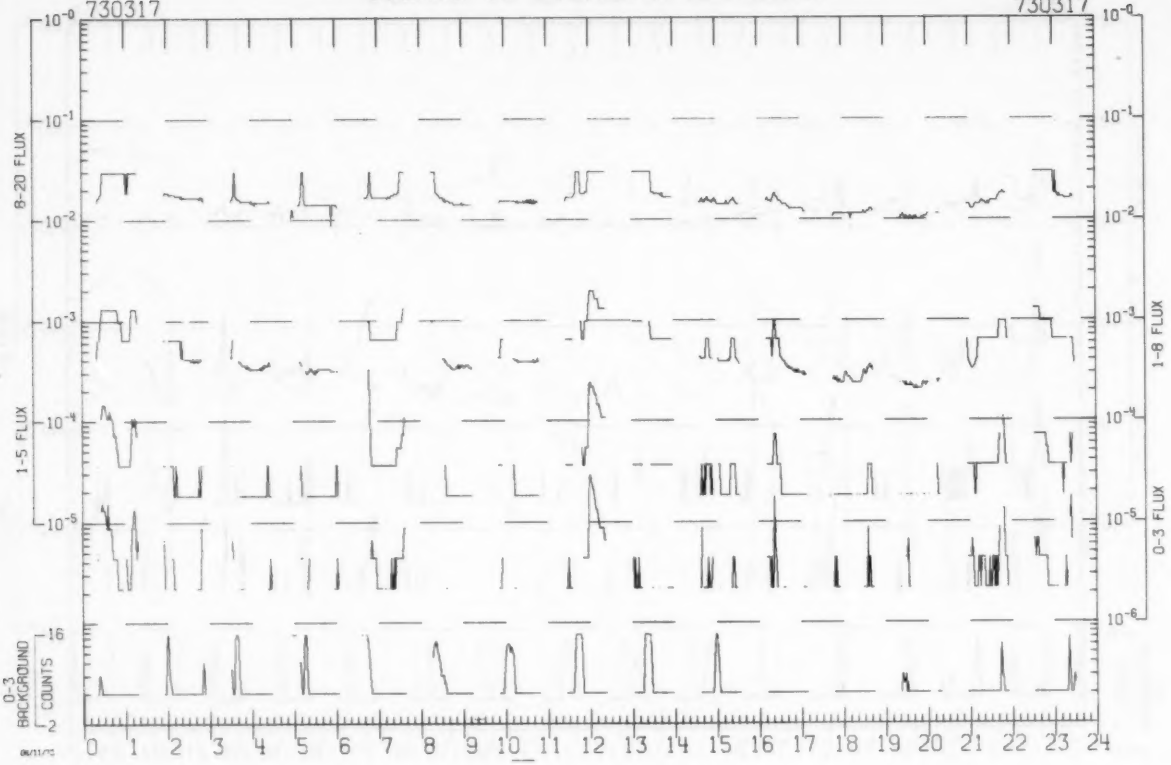

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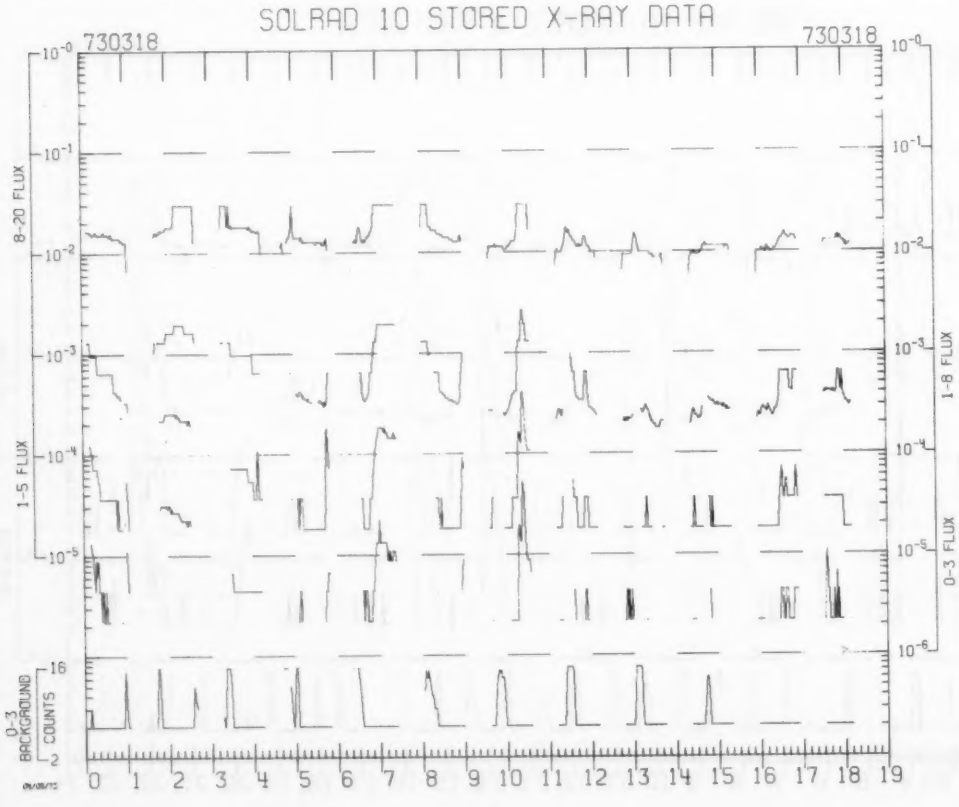

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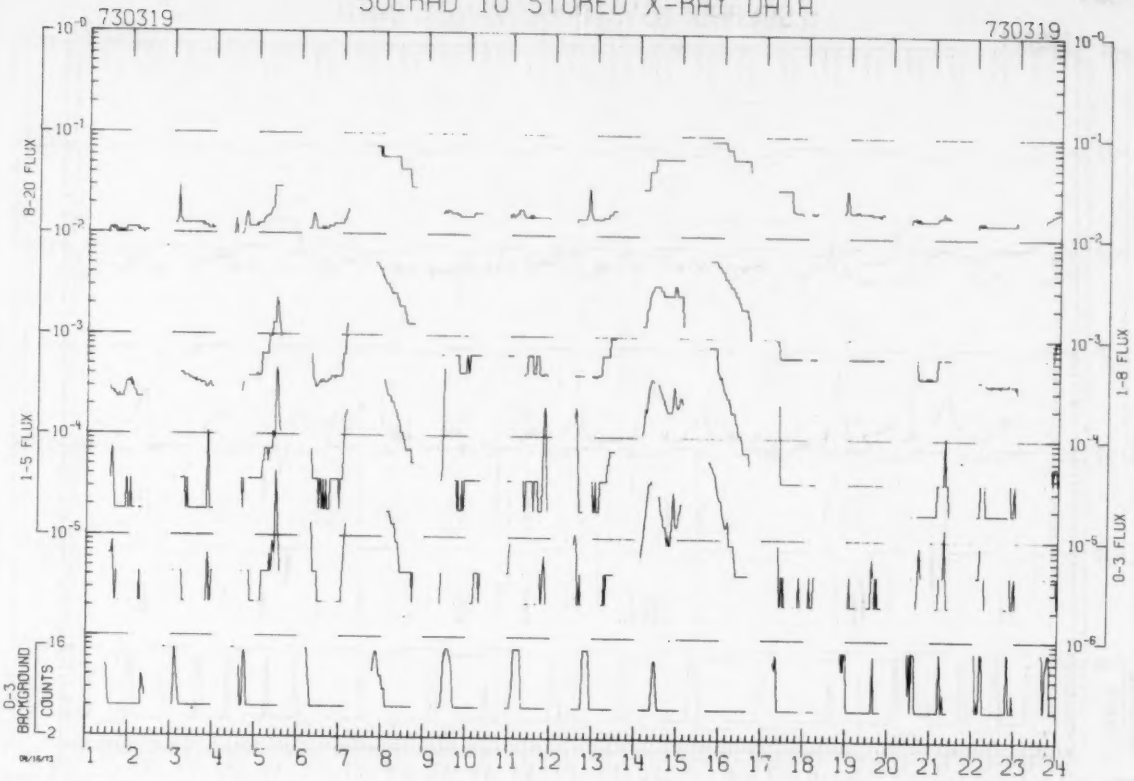

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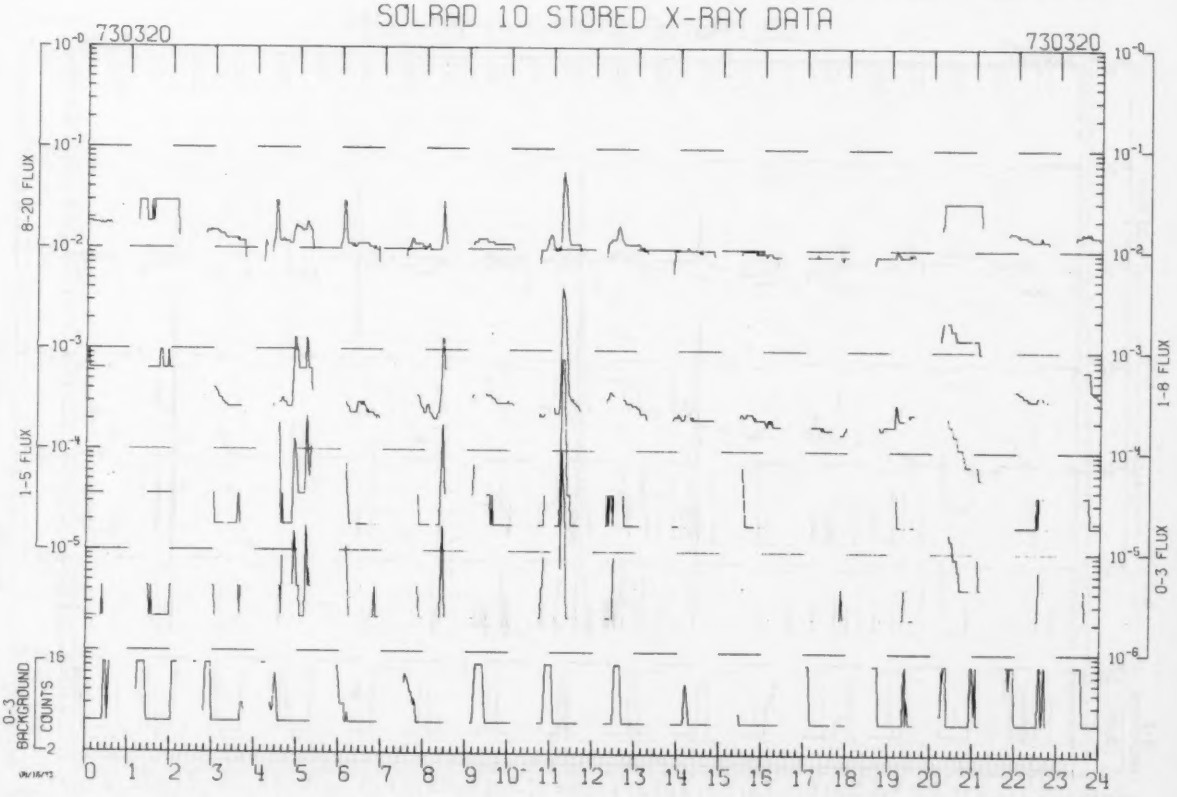

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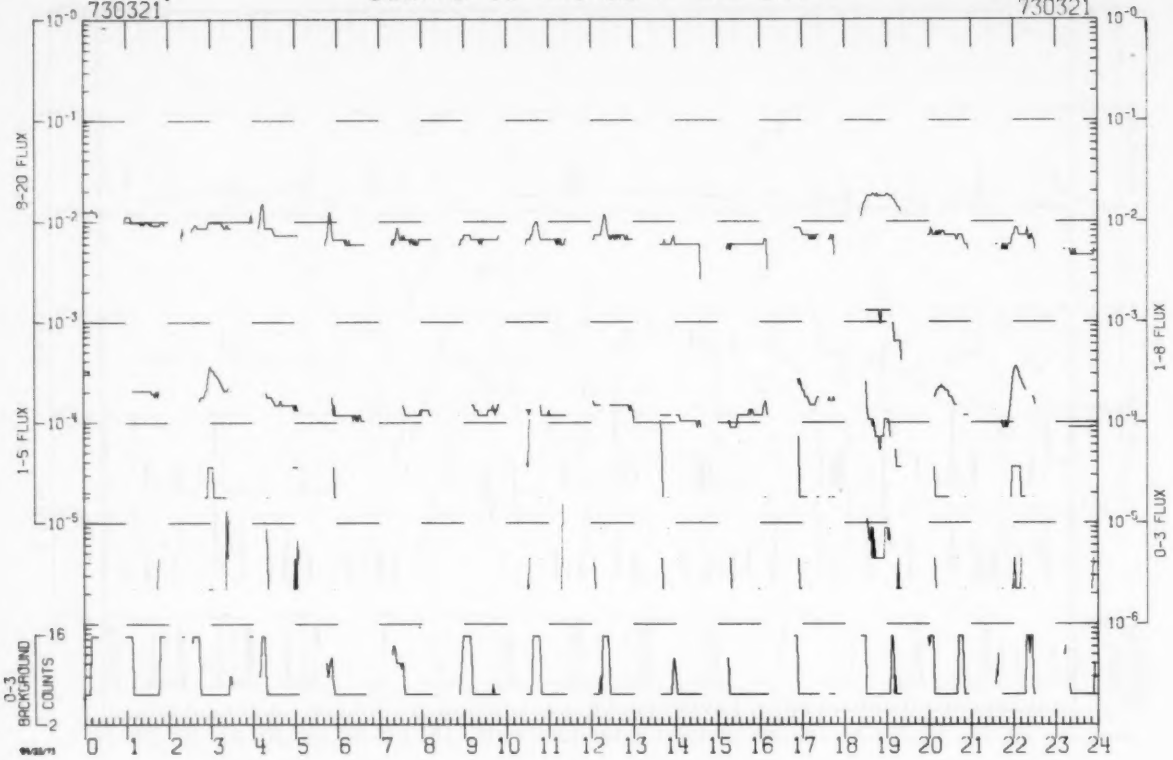

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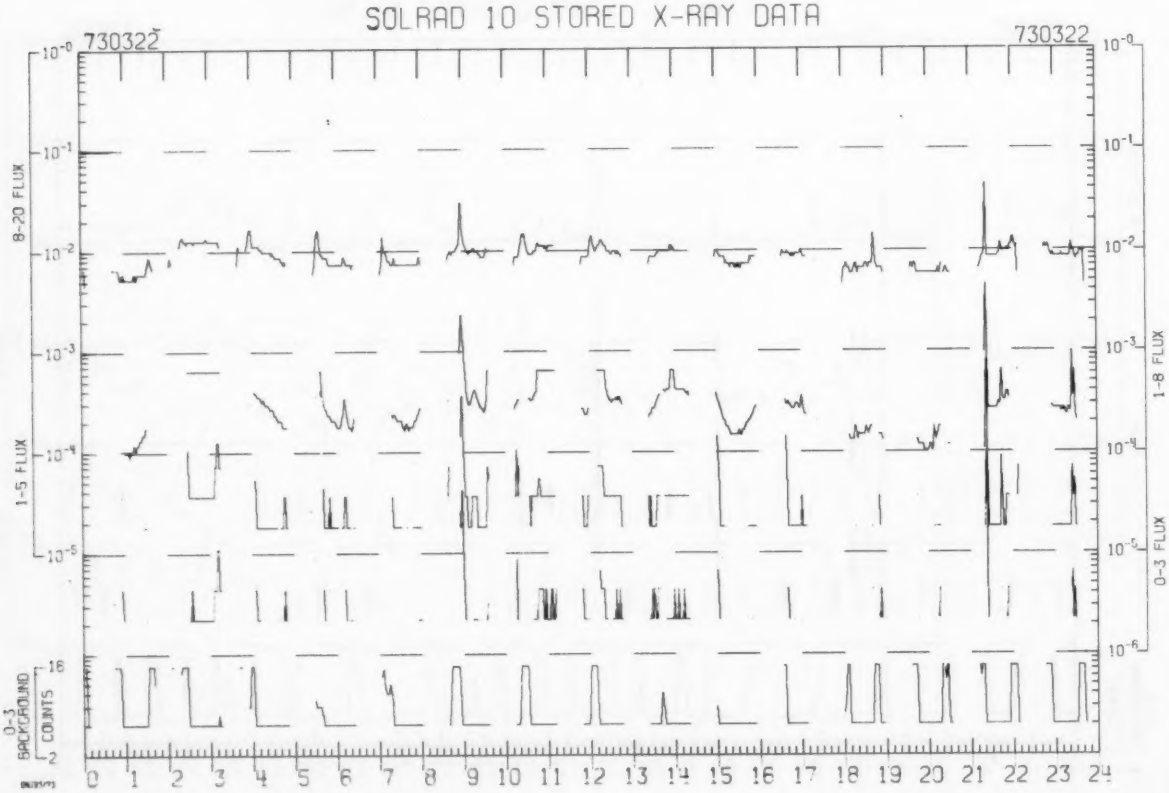

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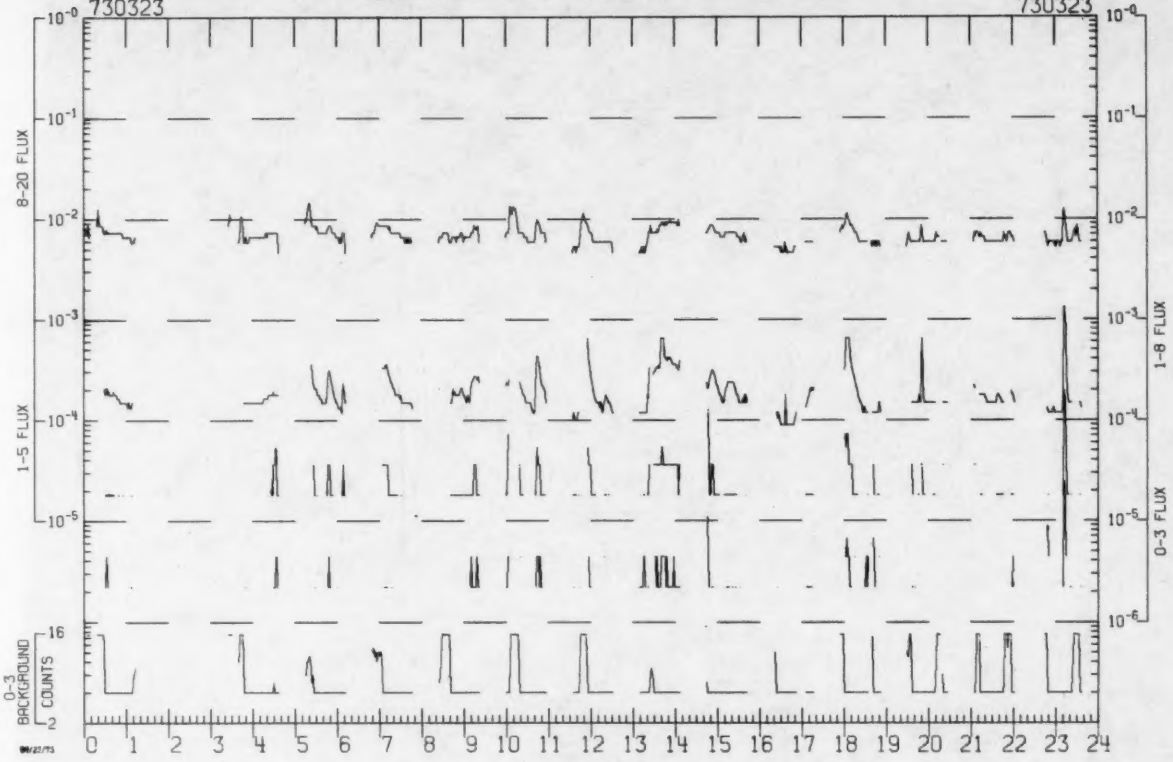

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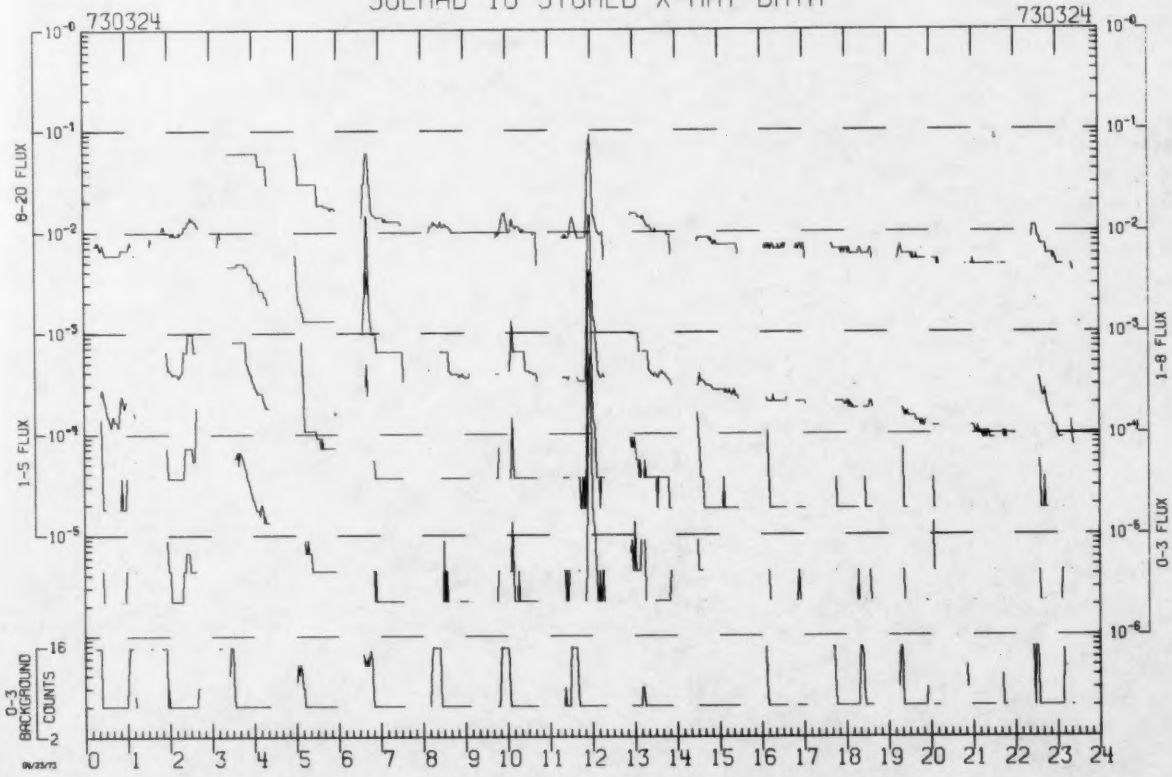

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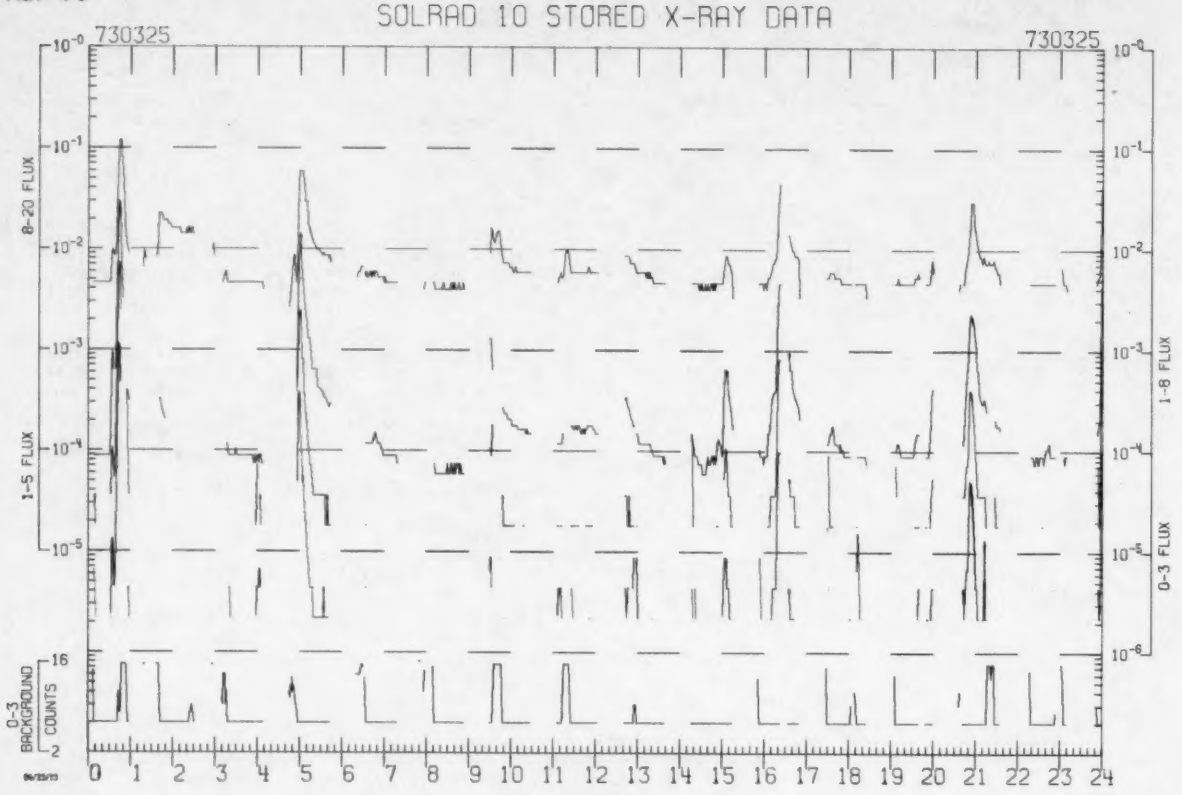

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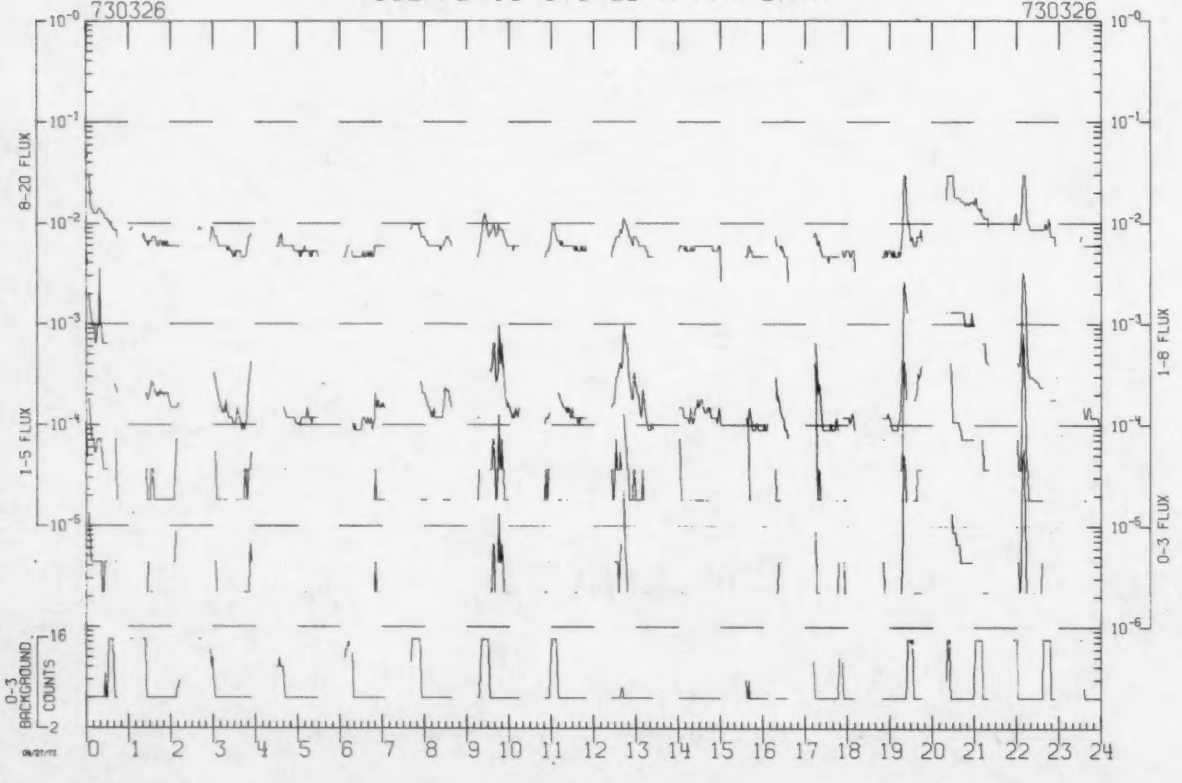

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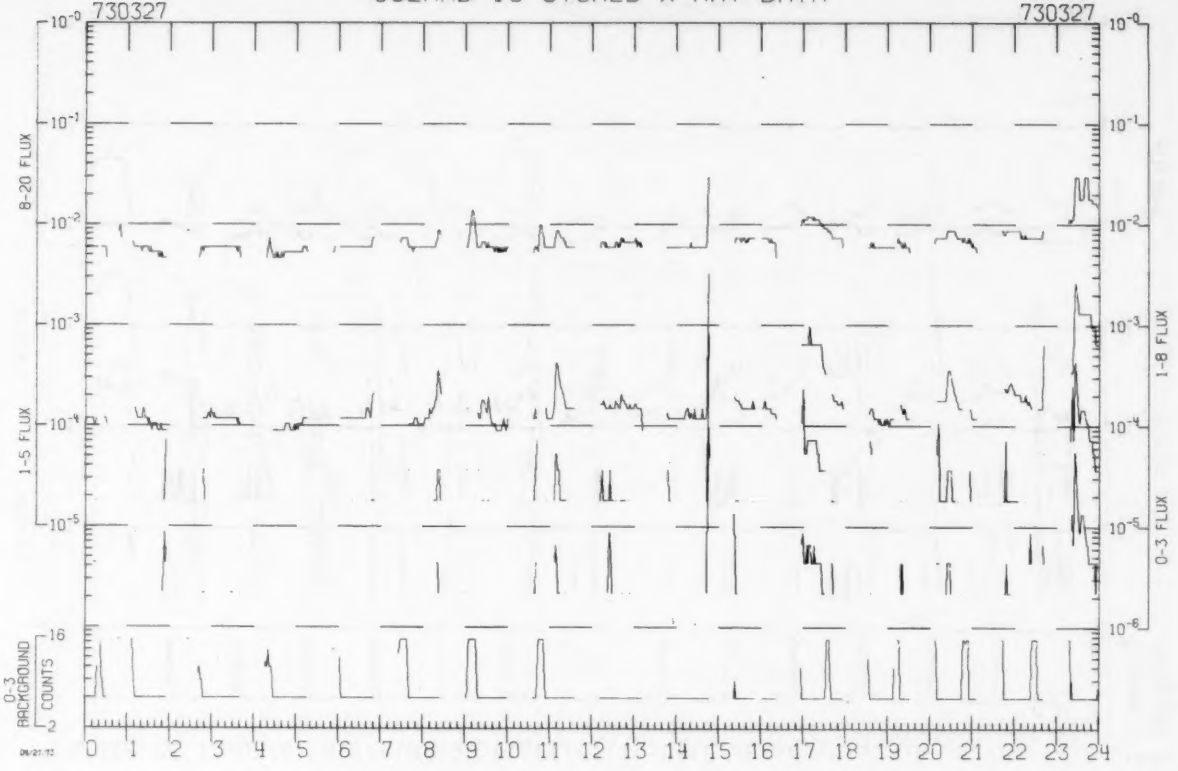

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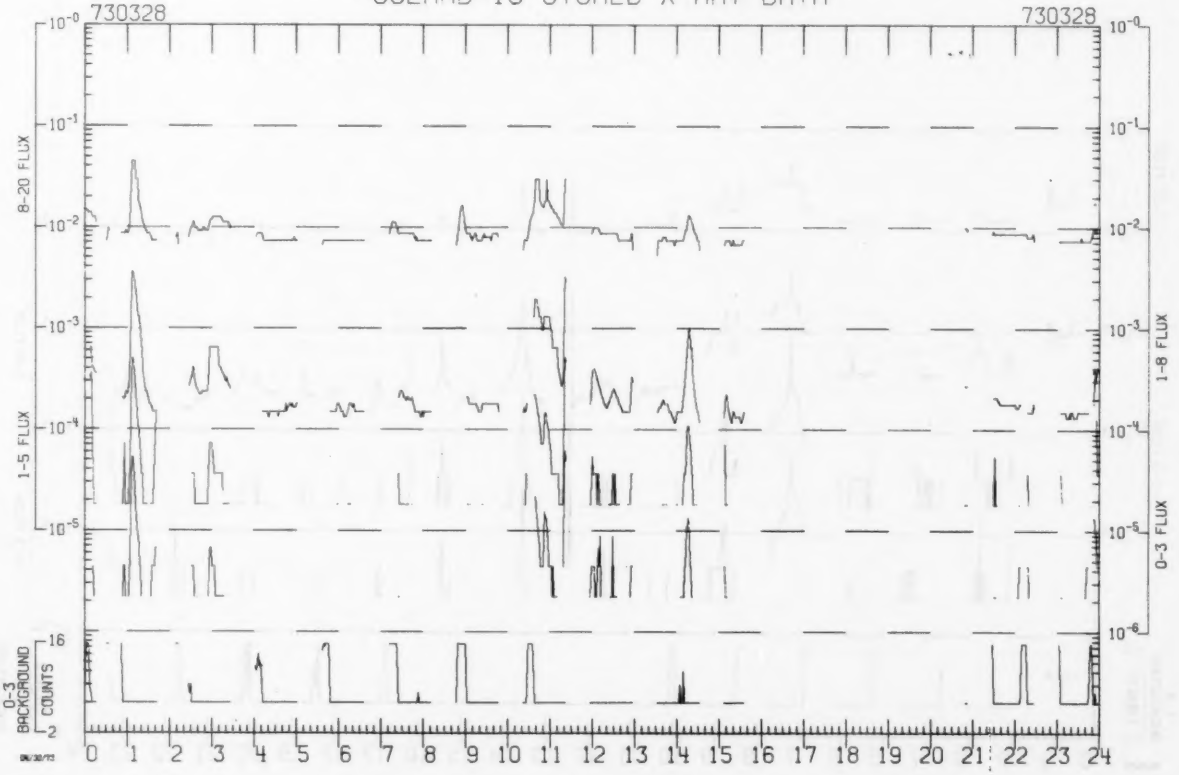

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730329
8-20 FLUX
1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
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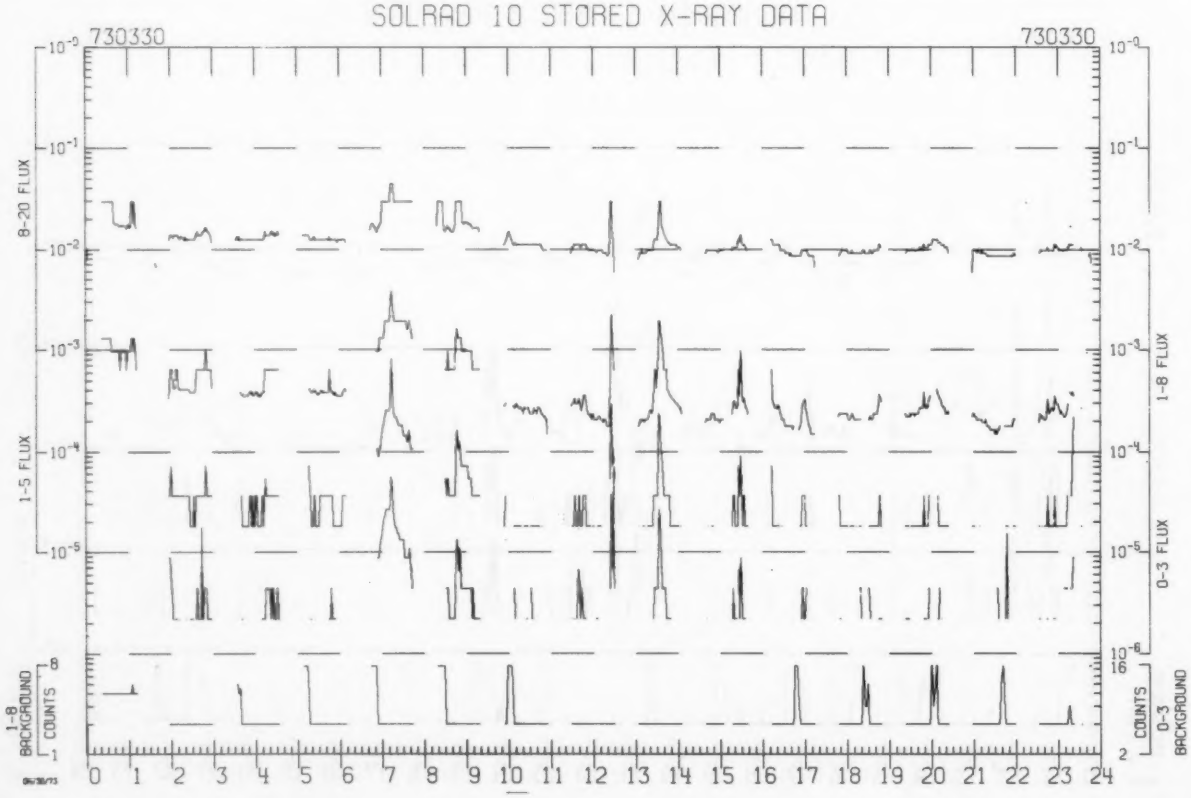
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730330
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1-5 FLUX
1-8 FLUX
0-3 FLUX
1-8 BACKGROUND COUNTS
0-3 BACKGROUND COUNTS
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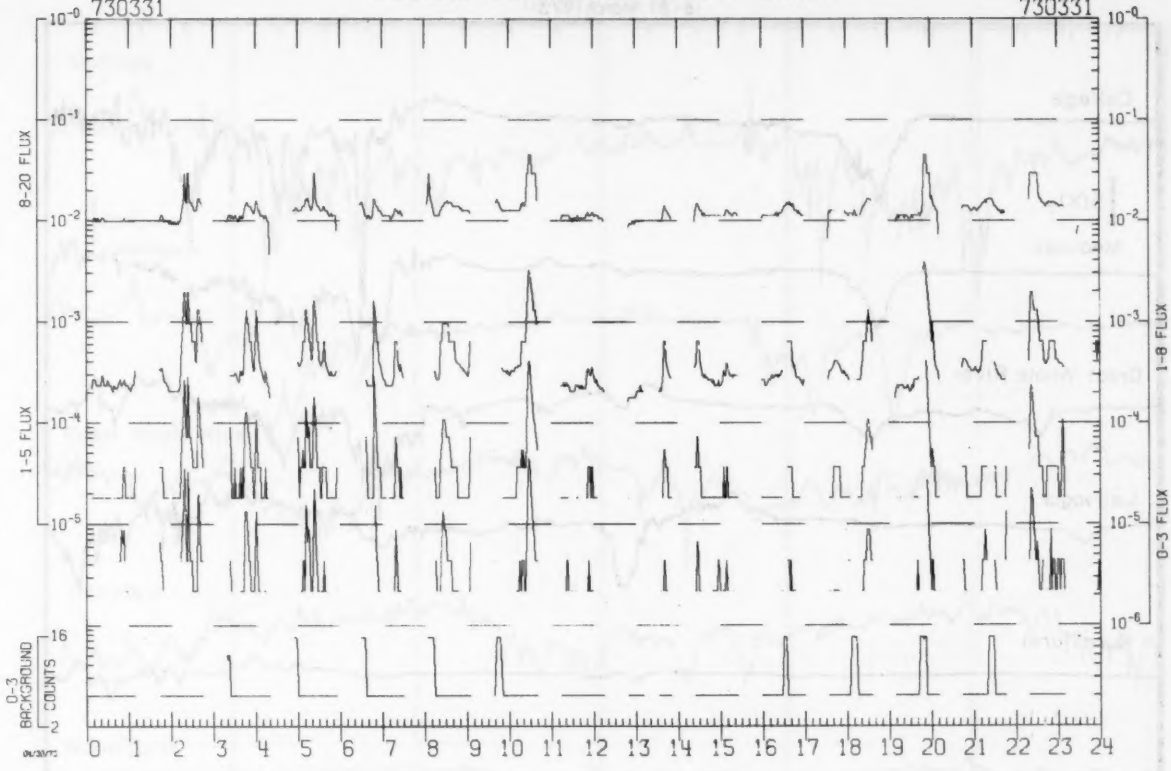
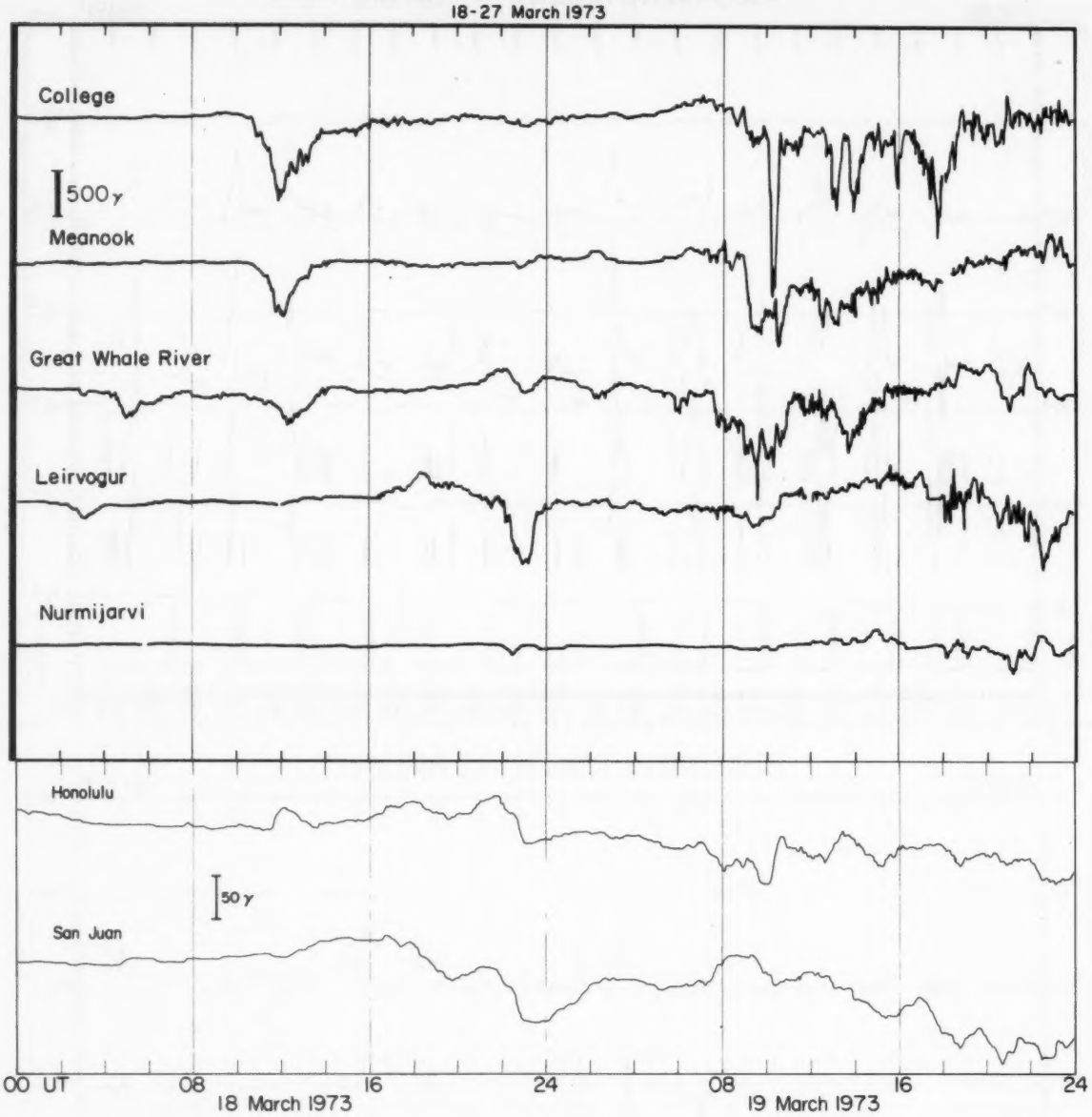


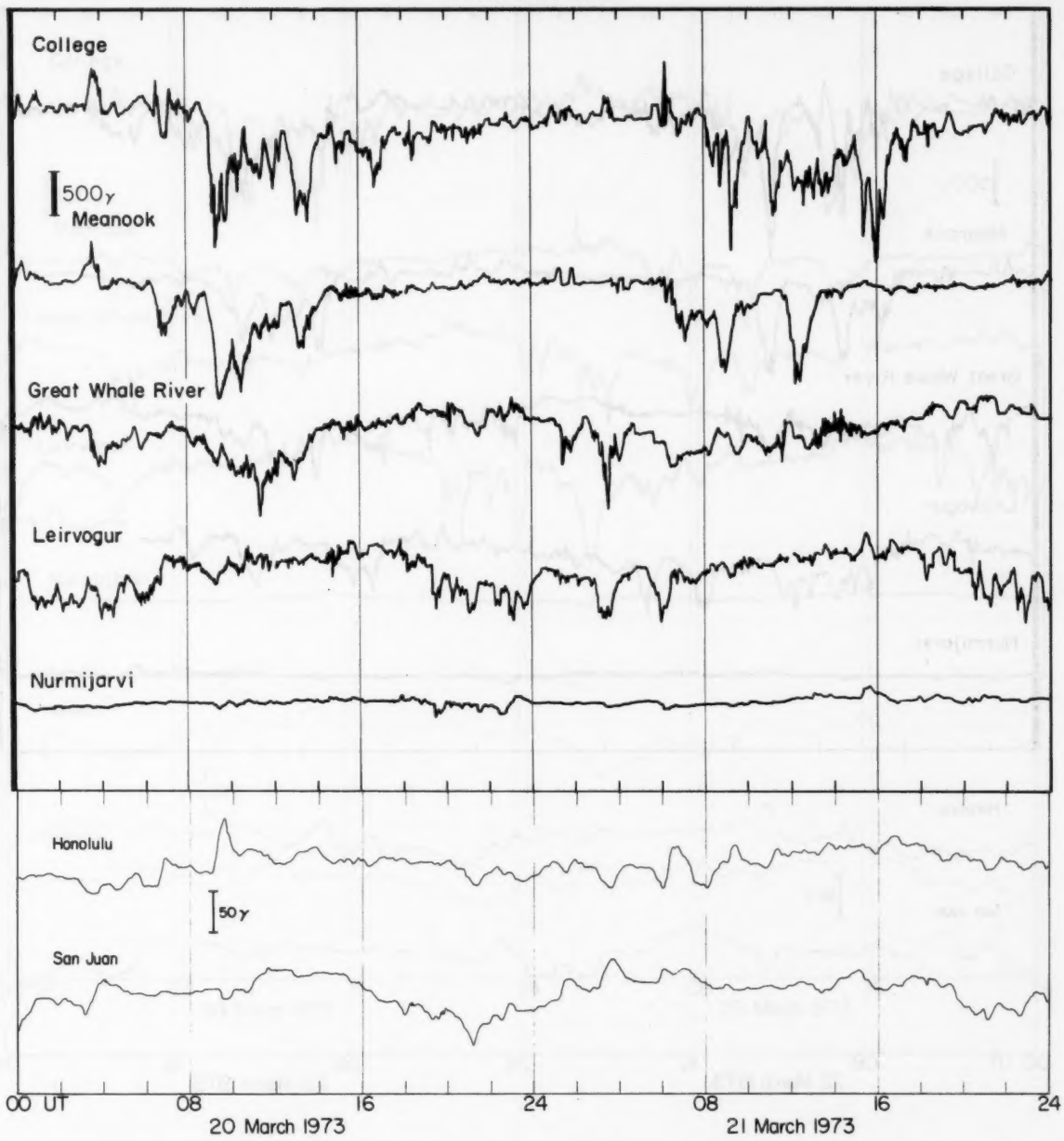
MAGNETOGRAMS OF GEOMAGNETIC STORM

18-27 March 1973



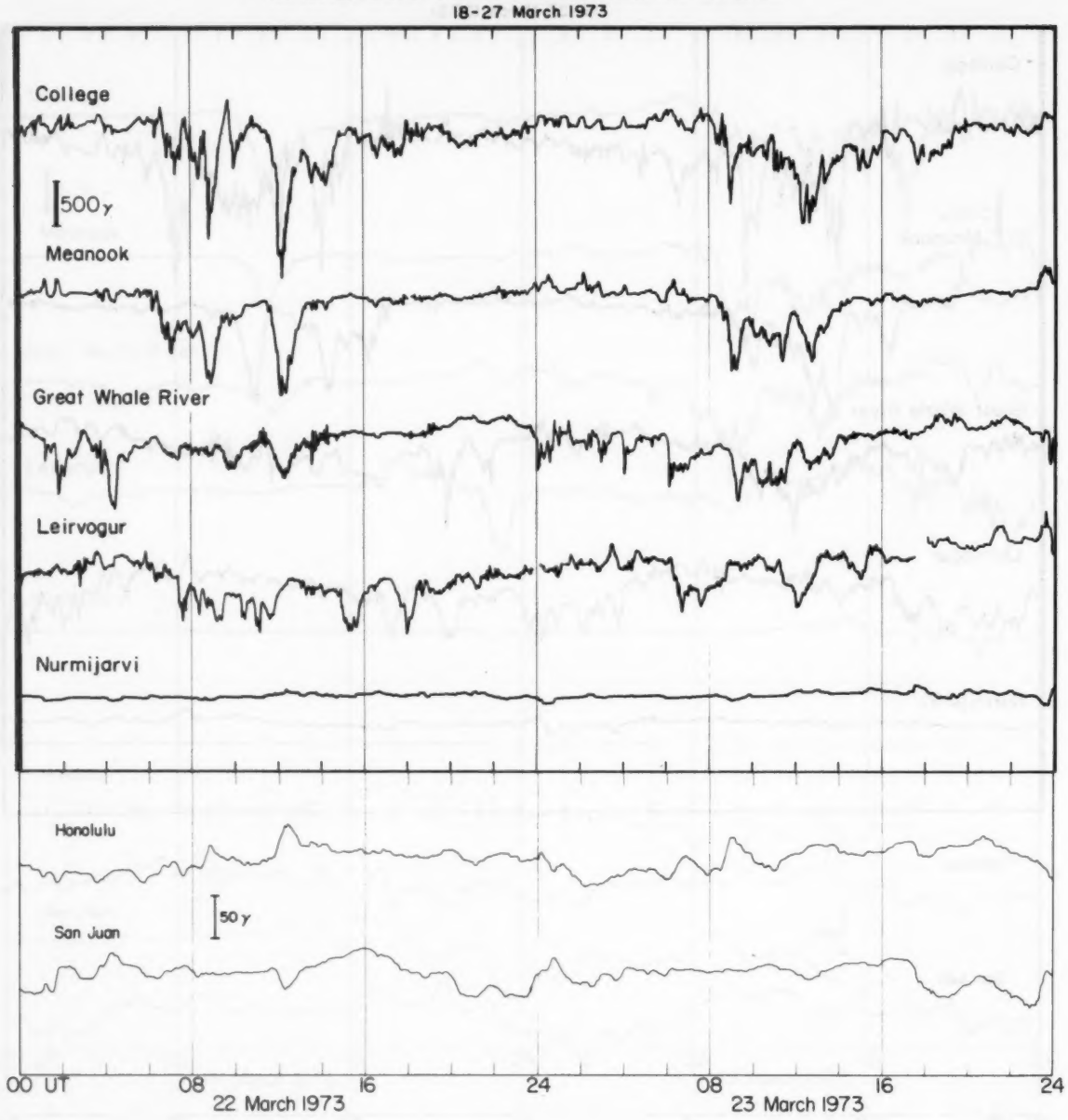
MAGNETOGRAMS OF GEOMAGNETIC STORM

18-27 March 1973

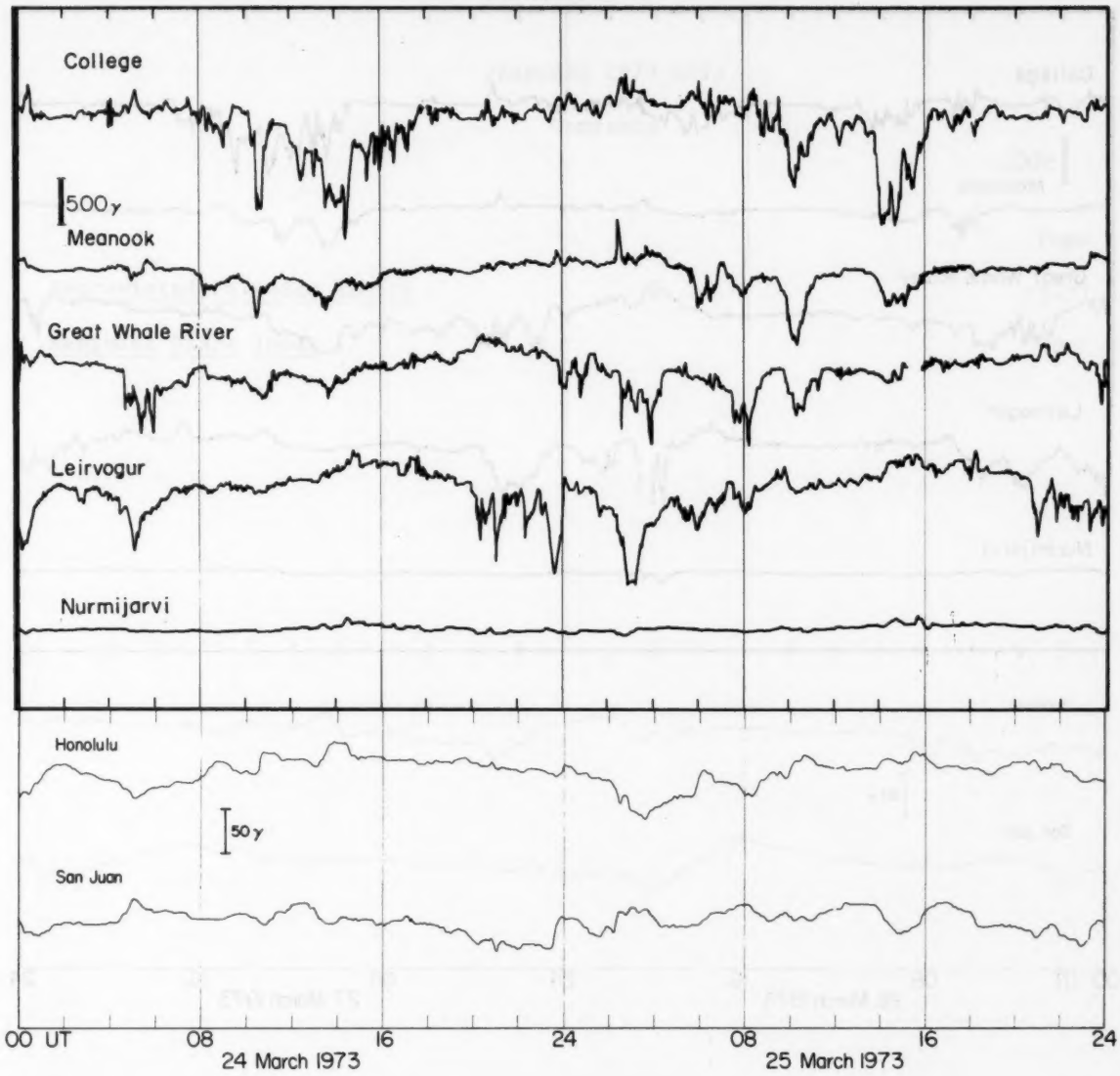


MAGNETOGRAMS OF GEOMAGNETIC STORM

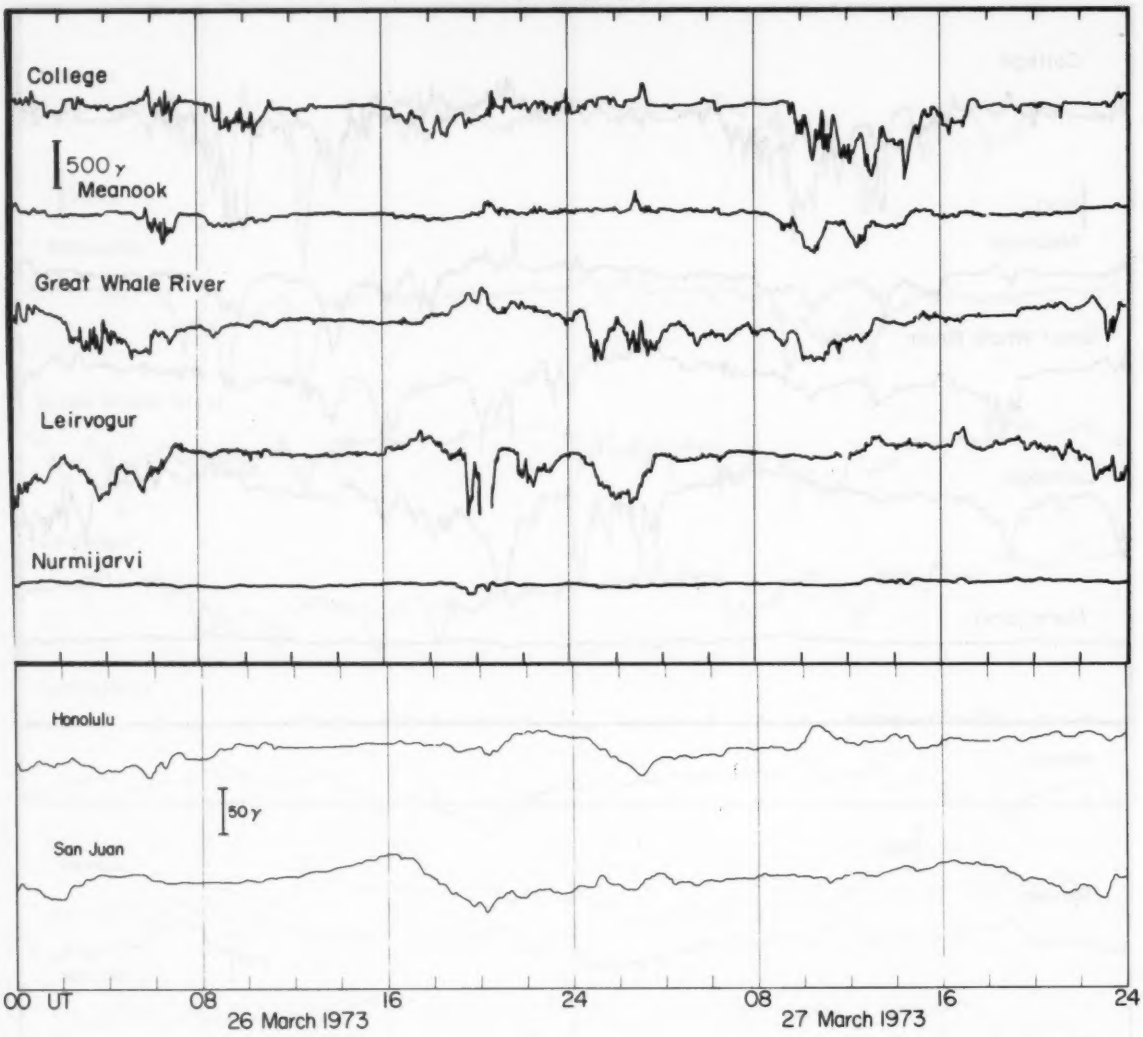
18-27 March 1973



MAGNETOGRAMS OF GEOMAGNETIC STORM
18-27 March 1973



MAGNETOGRAMS OF GEOMAGNETIC STORM
18-27 March 1973



SGD 349 Part II (Comprehensive)

FEBRUARY 1973 DATA

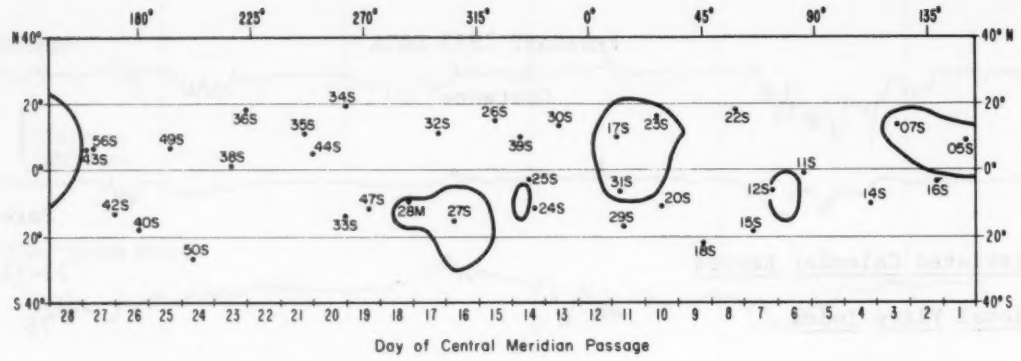
Contents

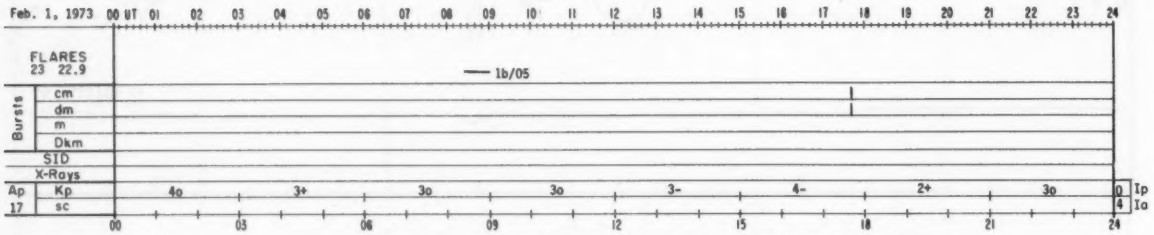
	Page
Abbreviated Calendar Record	72-77
Regional Flare Index	78

For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

ABBREVIATED CALENDAR RECORD

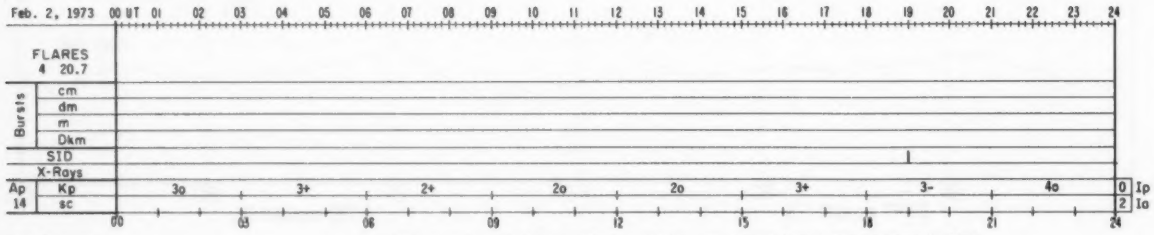
FEBRUARY 1973





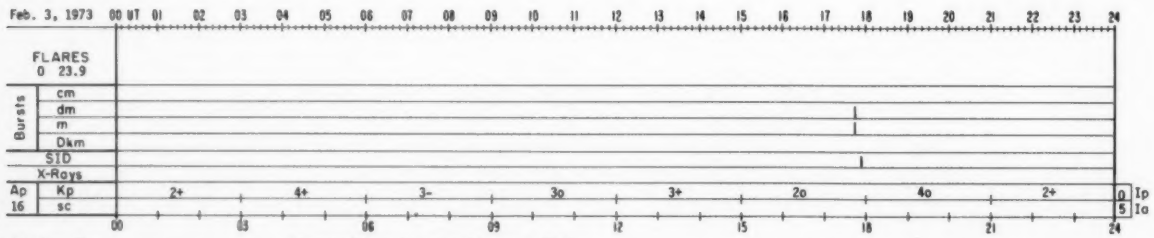
91 10 cm flux
7 Rz
CMP 12205 N08 (2) (19097) N12 α
19100 N10 α
(19102) N10 β CMP Jan. 31
19103 N09 α

Moderately br. green corona 7 days earlier on NE limb, very br. green corona 7 days later on NW limb.



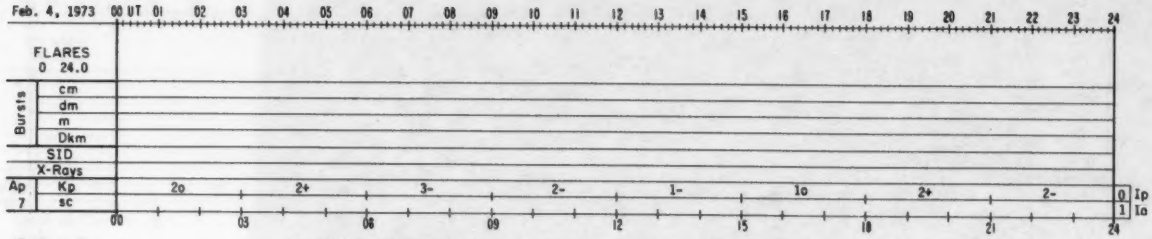
91 10 cm flux
17 Rz
CMP (12216) S04

Very br. green corona 7 days earlier on NE limb, no coronal data 7 days later on W. limb.



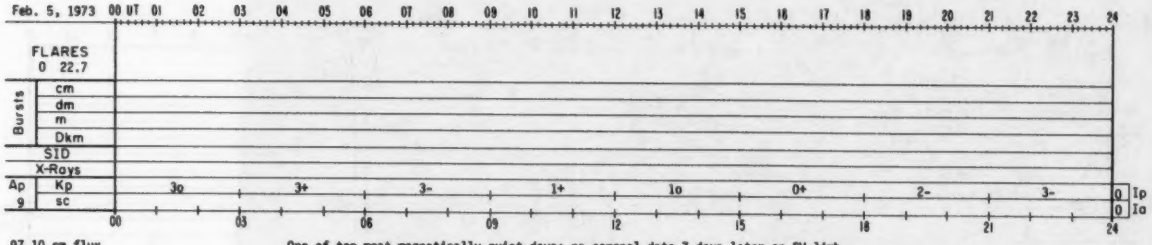
96 10 cm flux
22 Rz
CMP 12207 N13 (3)

No coronal data 7 days earlier on E. limb.



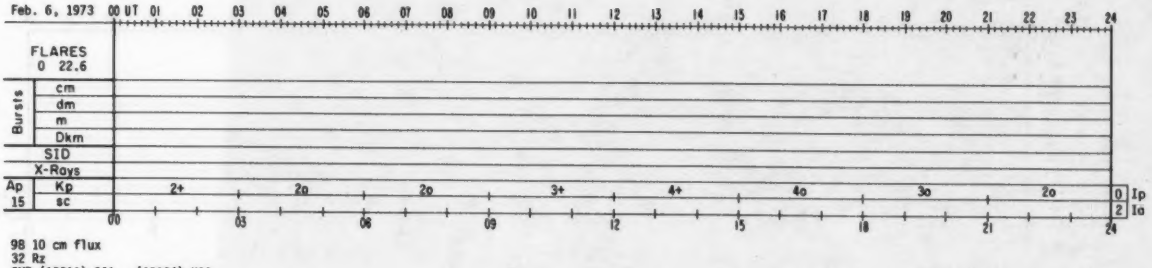
97 10 cm flux
21 Rz
CMP (12214) S10

One of five most magnetically quiet days; no coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.

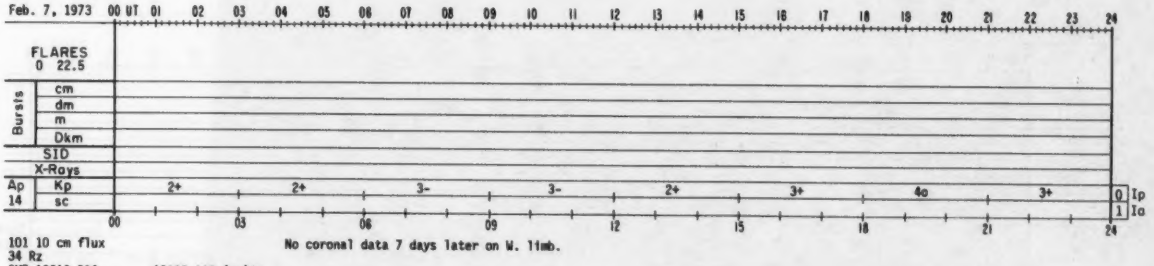


97 10 cm flux
41 Rz

One of ten most magnetically quiet days; no coronal data 7 days later on SW limb.

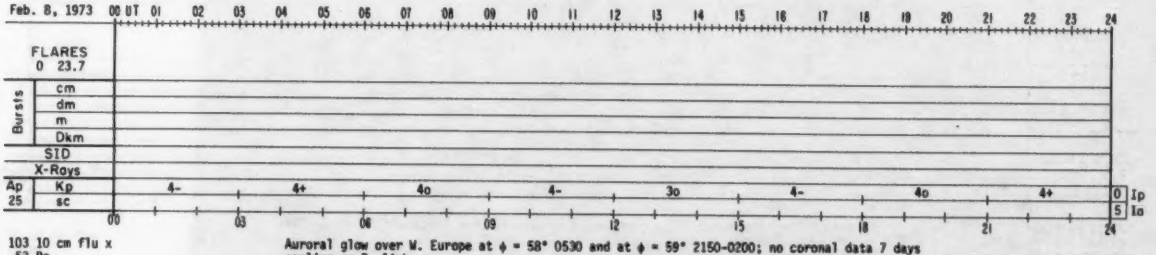


98 10 cm flux
32 Rz
CMP (12211) S01 (19104) N00



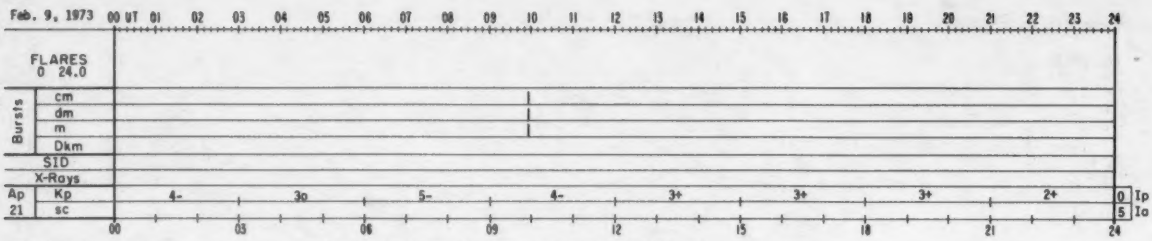
101 10 cm flux
34 Rz
CMP 12212 S06 19105 S08 (βp)3
12215 S18 (3)

No coronal data 7 days later on W. limb.



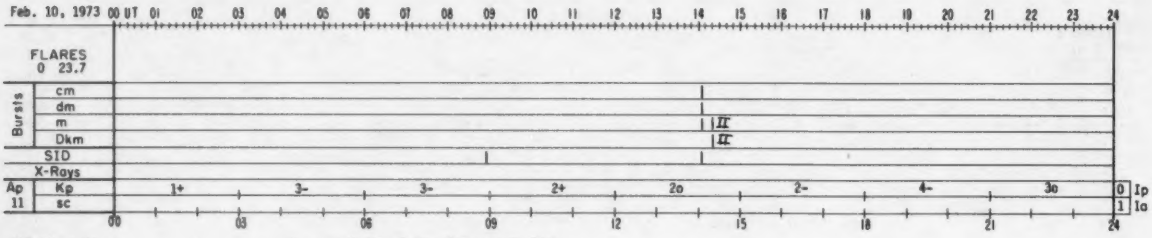
103 10 cm flu x
53 Rz
CMP (12222) N18

Auroral glow over W. Europe at ϕ = 58° 0530 and at ϕ = 59° 2150-0200; no coronal data 7 days earlier on E. limb.



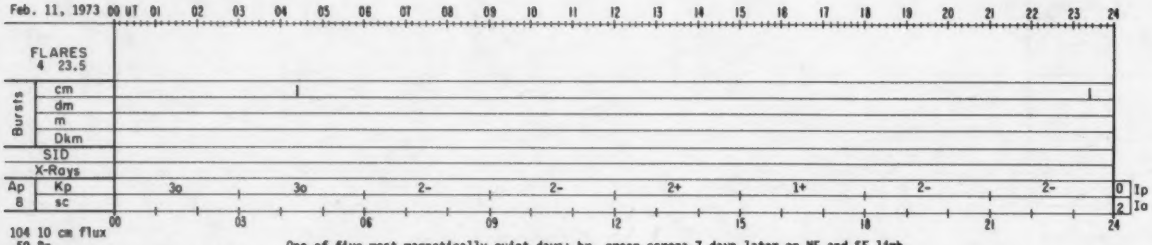
104 10 cm flux
60 Rz
CMP 12218 S22 (3)

Auroral glow visible over W. Europe to ϕ = 59° 0000-0200.



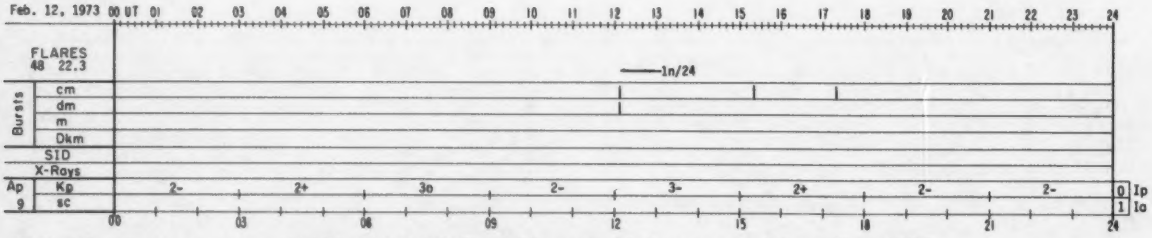
105 10 cm flux
61 Rz
CMP 12220 S11
12223 N16 19108 N13 (β)2
(19111) N16 (β)2

No coronal data 7 days later on W. limb.



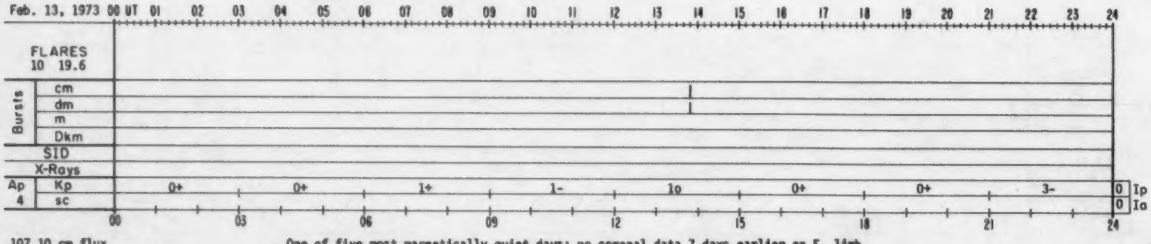
104 10 cm flux
59 Rz
CMP (12229) S17 (19112) S17 (αp)2
(12231) S07
12217 N10 19106 N12 (βp)5
19107 N07 (αp)4

One of five most magnetically quiet days; br. green corona 7 days later on NE and SE limb, moderately br. green corona 7 days later on NW limb.



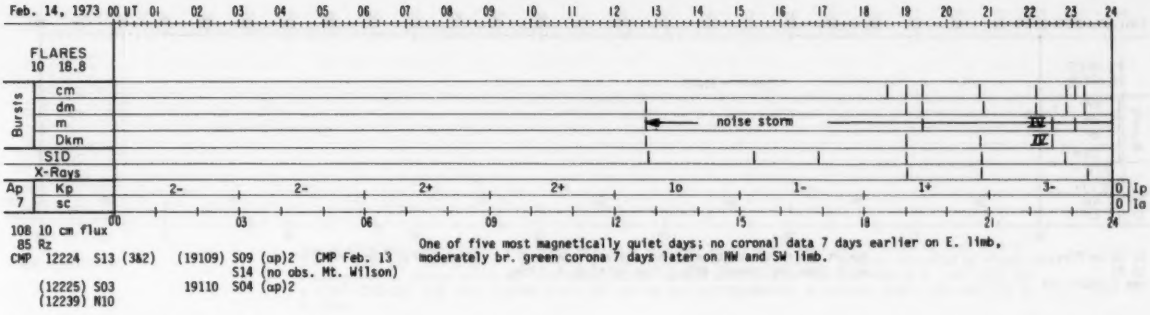
107 10 cm flux
80 Rz

One of ten most magnetically quiet days; moderately br. green corona 7 days earlier on E limb, no coronal data 7 days later on W. limb.



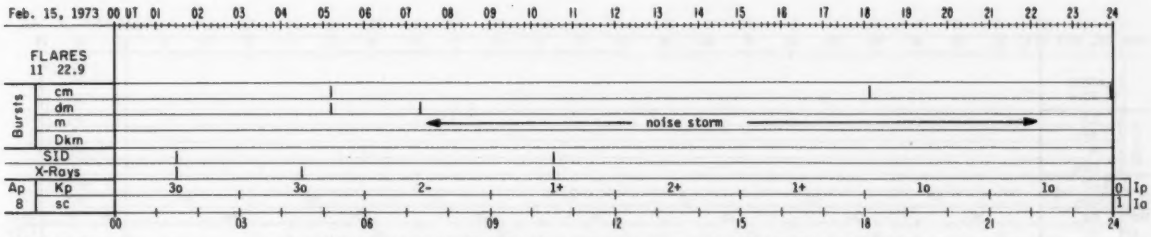
107 10 cm flux
83 Rz
CMP 12230 N13

One of five most magnetically quiet days; no coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.



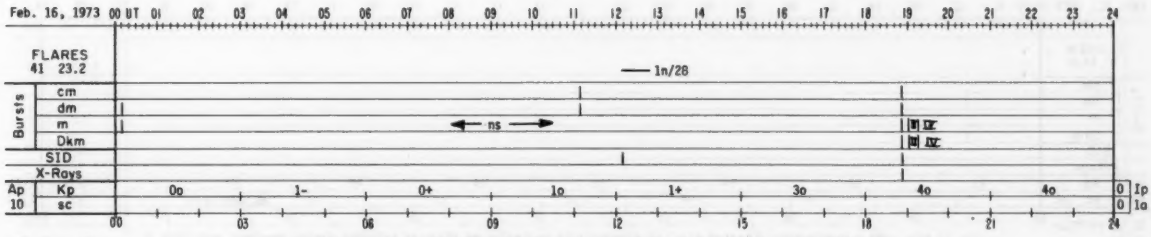
108 10 cm flux
85 Rz
CMP 12224 S13 (3&2) (19109) S09 (αp)2 CMP Feb. 13
S14 (no obs. Mt. Wilson)
(12225) S03 19110 S04 (αp)2
(12239) N10

One of five most magnetically quiet days; no coronal data 7 days earlier on E. limb, moderately br. green corona 7 days later on NW and SW limb.



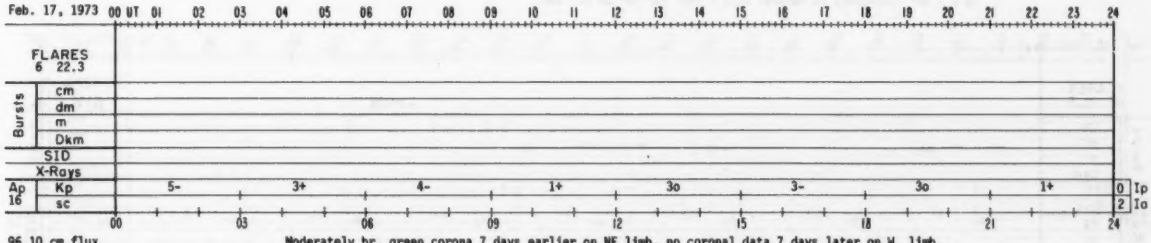
107 10 cm flux
74 Rz
CMP 12226 N15 (3)

One of five most magnetically quiet days; very br. green corona 7 days earlier on SE limb, no coronal data 7 days later on W. limb.



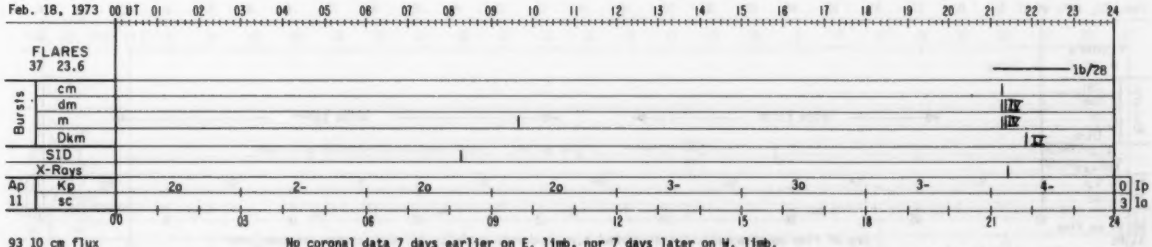
101 10 cm flux
54 Rz
CMP 12227 S16 19113 S16 (βp)4

One of ten most magnetically quiet days; no coronal data 7 days earlier on E. limb, moderately br. green corona 7 days later on SW limb.



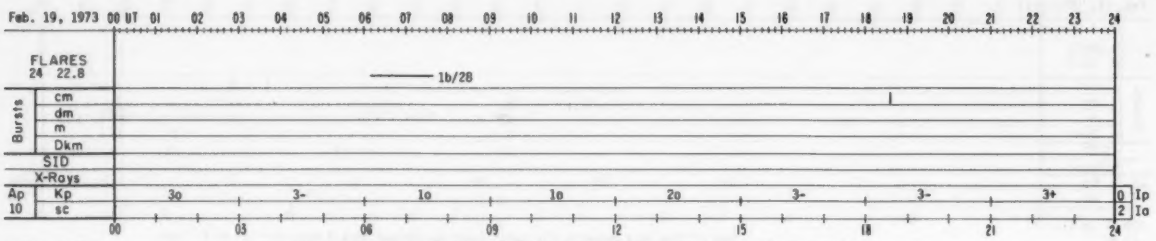
96 10 cm flux
36 Rz
CMP 12232 N11 19115 N10 (αp)2

Moderately br. green corona 7 days earlier on NE limb, no coronal data 7 days later on W. limb.



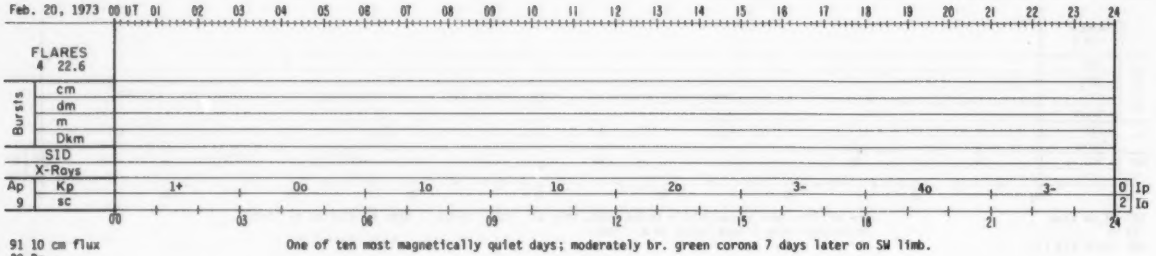
93 10 cm flux
28 Rz
CMP 12228 S09 19114 S10 (αp)2

No coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.



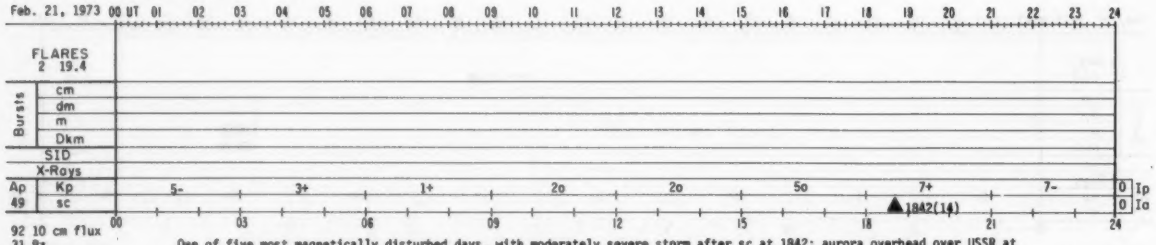
91 10 cm flux
18 Rz
CMP (12247) S12

One of ten most magnetically quiet days; moderately br. green corona 7 days earlier on SE limb, no coronal data 7 days later on W. limb.



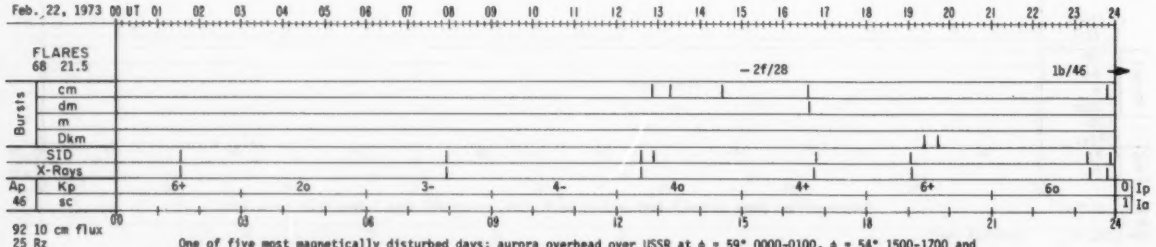
91 10 cm flux
30 Rz
CMP 12234 N19
12233 S14 19116 S16 αp

One of ten most magnetically quiet days; moderately br. green corona 7 days later on SW limb.



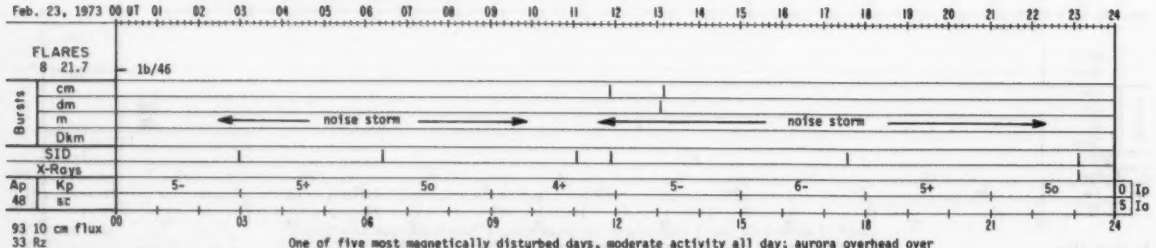
92 10 cm flux
31 Rz
CMP (12244) N05
12235 N11 (2)

One of five most magnetically disturbed days, with moderately severe storm after sc at 1842; aurora overhead over USSR at ϕ = 57° 1500-1900 and ϕ = 59° 2000, 2100 and 2200-0100; very active auroral display over W. Europe visible from sunset to 0200, with bright rayed arc, sometimes band, with base overhead to ϕ = 63° - 64° and rays overhead to ϕ = 59° 2020 and 2250, pulsations in the earlier stages 1900-2000 and flaming around 2300, band became multiple occasionally and visible to ϕ = 54° 1840-1940; no coronal data 7 days earlier on E. limb.



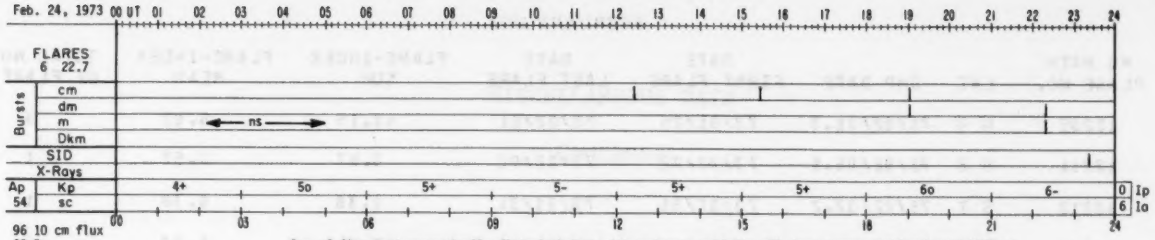
92 10 cm flux
25 Rz

One of five most magnetically disturbed days; aurora overhead over USSR at ϕ = 59° 0000-0100, ϕ = 54° 1500-1700 and 1800-1900, ϕ = 56° 2000-2100, ϕ = 58° 2200 and ϕ = 59° 2300; very active auroral display visible over W. Europe 0000-0200; active display continuing thru all dark hours with homogeneous arc, frequently rayed, with base overhead to ϕ = 63° 2200 and retreating northward, visible to ϕ = 54° 2000-2235.



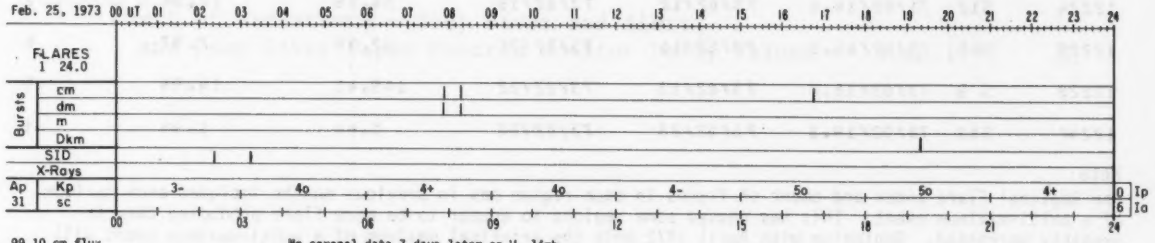
93 10 cm flux
33 Rz
CMP 12236 N18 (19117) N17 αf
(12238) N02

One of five most magnetically disturbed days, moderate activity all day; aurora overhead over USSR at ϕ = 57° 1200-2000, active auroral display visible over W. Europe thru all dark morning hours, display concealed by cloud but visible to ϕ = 58° 1800-0005; no coronal data 7 days later on W. limb.



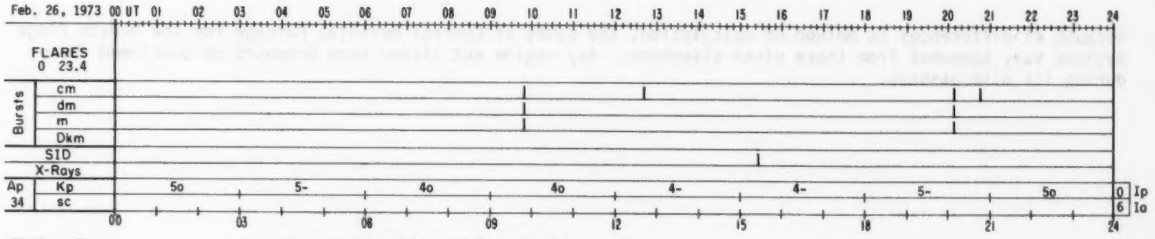
96 10 cm flux
38 Rz
CMP (12250) S27

One of five most magnetically disturbed days with moderate activity all day; aurora overhead over USSR at ϕ = 57° 1200 and 1800-1900, ϕ = 55° 1400, ϕ = 54° 1500-1600 and 1700, auroral display concealed by cloud, but visible over W. Europe to ϕ = 58° 0000-0005, active auroral display with rays overhead to ϕ = 61° 2030 and ϕ = 59° 2215-2221 and also visible to ϕ = 54° during most active phases; no coronal data 7 days earlier on E. limb.



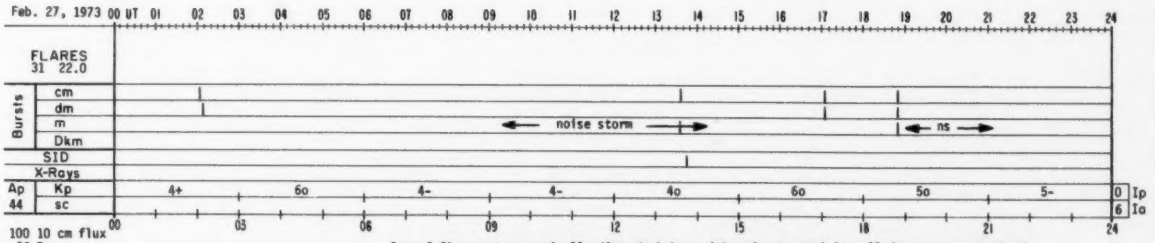
99 10 cm flux
48 Rz
CMP 12249 N06 19121 N06 (8)3

No coronal data 7 days later on W. limb



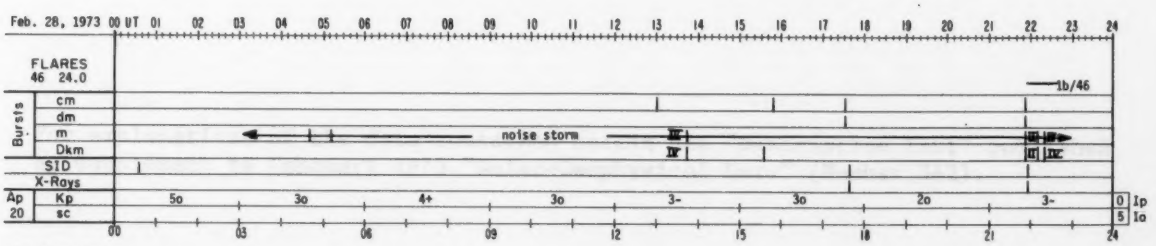
98 10 cm flux
37 Rz
CMP 12240 S18 (19119) S19 α

No coronal data 7 days earlier on E. limb.



100 10 cm flux
36 Rz
CMP 12242 S13 19123 S14 (αf)1 CMP Feb. 26
(12256) N07
12243 N06 (3)

One of five most magnetically disturbed days with moderate activity all day; aurora overhead over USSR at ϕ = 59° 1300-1500, 2000, 2100, 2200-2300 and 2400, auroral display with sporadic outbursts of rays visible over W. Europe at 0045-0345 and 0445, concealed by cloud at lower latitudes but certainly visible to ϕ = 58°.



103 10 cm flux
36 Rz

REGIONAL FLARE INDEX

FEBRUARY 1973

MC MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
12205	N 9	73/02/01.3	73/01/25	73/02/01	40.15	5.02	3
12211	S 2	73/02/06.1	73/02/02	73/02/02	3.57	3.57	1
12212	S 7	73/02/07.2	73/01/31	73/01/31	0.38	0.38	1
12223	N16	73/02/10.5	73/02/14	73/02/15	17.84	8.92	6
12217	N11	73/02/11.8	73/02/13	73/02/13	6.54	6.54	1
12224	S12	73/02/14.4	73/02/12	73/02/15	50.05	12.51	2
12227	S16	73/02/16.8	73/02/11	73/02/21	32.65	2.97	6
12228	S 9	73/02/18.2	73/02/13	73/02/22	149.41	14.94	5
12247	S12	73/02/19.3	73/02/23	73/02/23	1.44	1.44	1

Note:
The Regional Flare Index and count of flares in each region has in previous months included each maximum of a multi-maximum event. This has caused some regions to appear to be more flare producing than is probably warranted. Beginning with April 1972 only the principal maximum of a multi-maximum event will be used in the calculation. Also note that only the Confirmed Events as selected for the "I.A.U. Quarterly Bulletin on Solar Activity" are included in the calculation.

Because of differences in method of calculation, the dates of Central Meridian Passage for the McMath Plage Regions vary somewhat from those given elsewhere. Any region not listed here produced no confirmed flares during its disk passage.

SGD 349 Part II (Comprehensive)

MISCELLANEOUS DATA

Contents

Page

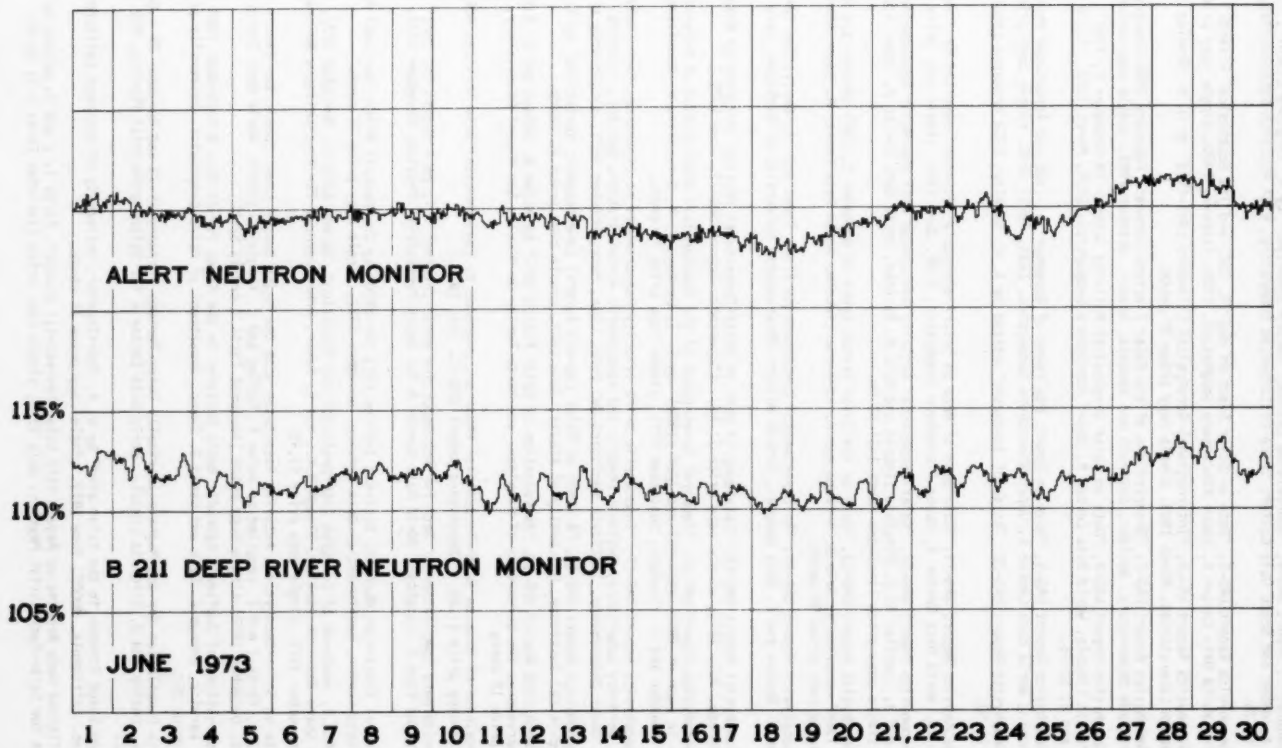
Cosmic Rays
Chart of Variations - Deep River and Alert,
and Deep River Super Neutron Monitor Daily Values -- June 1973 81

For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)

JUNE 1973



DAILY AVERAGE COUNTS PER HOUR

	DEEP RIVER
1	6922.5
2	6922.6
3	6886.0
4	6859.8
5	6833.7
6	6837.2
7	6860.5
8	6864.3
9	6883.9
10	6883.4
11	6819.2
12	6812.1
13	6829.2
14	6830.6
15	6828.9
16	6815.4
17	6817.3
18	6791.4
19	6805.3
20	6811.6
21	6824.4
22	6857.3
23	6869.0
24	6860.9
25	6832.9
26	6868.8
27	6902.3
28	6943.8
29	6943.8
30	6892.3

Publication Notice

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(Prepared by World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado)

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Report UAG-23, "U.R.S.I. Handbook of Ionogram Interpretation and Reduction", Second Edition, November 1972, edited by W. R. Piggott, Radio and Space Research Station, Slough U.K., and K. Rawer, Arbeitsgruppe für Physikalische Weltraumforschung, Freiburg, G.F.R., November 1972, single copy price $1.75.

Report UAG-24, "Data on Solar-Geophysical Activity Associated with the Major Ground Level Cosmic Ray Events of 24 January and 1 September 1971", Parts 1 and 2, compiled by Helen E. Coffey and J. Virginia Lincoln, World Data Center A for Solar-Terrestrial Physics, December 1972, single copy price (includes Parts 1 and 2) $2.00.

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